The Only Journal With a Paid Circulation in the Rock Products Industry

Rock Products

Chicago, October 18, 1924 FOUNDED 1902 Volume XXVII, No. 21

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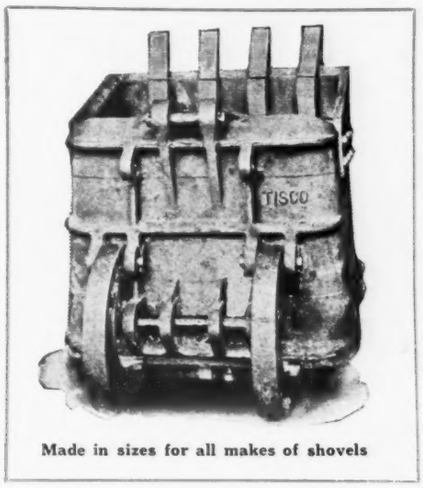
They stay sharp for unusually long periods, even in the most severe digging, and then possess the advantage of inexpensive renewability of the points.



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Sole owner of the Hibbard-Houe patents covering basic processes for the electric manufacture of manganese steel

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Tisco Chains are ideal for handling abrasive materials. Under the most trying conditions they will last from five to fifteen times longer than malleable chains.

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Manganese Steel Wearing Parts	Special Trackwork Cylinders for Gases	Hammered and Pressed Forgings	Rolls and Rolling Mill Machinery

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UP, and UP, and UP—
Where No Other Shovel Could Go

It was a four-mile haul with a 42 per cent grade stuck in here and there just to let this wonderful machine know it had tackled a real job.

There was no faltering, no delay, the O-S stuck to its task until the peak was made and then settled down to its regular work as though climbing a mountain was an everyday matter.

This is but another instance where the O-S Dependable gasoline shovel maintained its unblemished reputation—another instance where its "dependability" was demonstrated completely and convincingly.

ORTON & STEINBRENNER CO.

CRANES + BUCKETS + SHOVELS

608 South Dearborn Street, Chicago **Factory: Huntington, Indiana**

Rock Products

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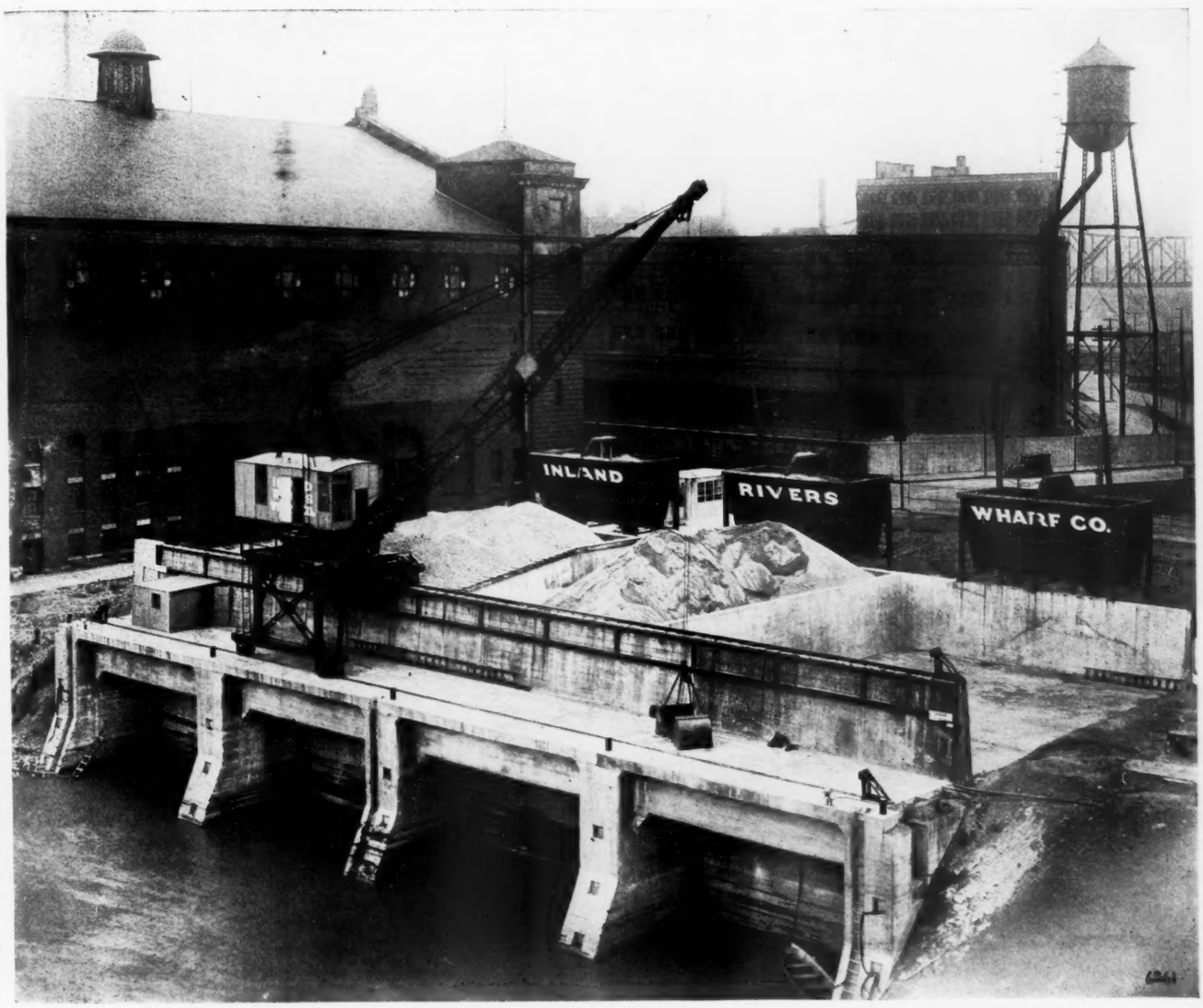
A Barge Unloading, Truck Loading Plant

Inland Rivers Wharf Company, Which Handles the Retail Business of the Keystone Sand and Supply Company in Pittsburgh

THE Keystone Sand and Supply Co. of Pittsburgh, Penn., of which Alex W. Dann is manager, maintains docks to which it brings the sand and gravel dredged from the Ohio. Barges are used for transportation, and these are towed by both steam and oil engine driven boats. The landing places also serve as yards for both retail and wholesale trade, being provided with facilities for loading trucks or cars.

The principal landing place in Pittsburgh is operated by a subsidiary company called the Inland Rivers Wharf Co. Its plant is remarkable not only for its efficient handling methods but for the handsome appearance it



River side of landing place showing gantry crane for unloading barges and concrete bins

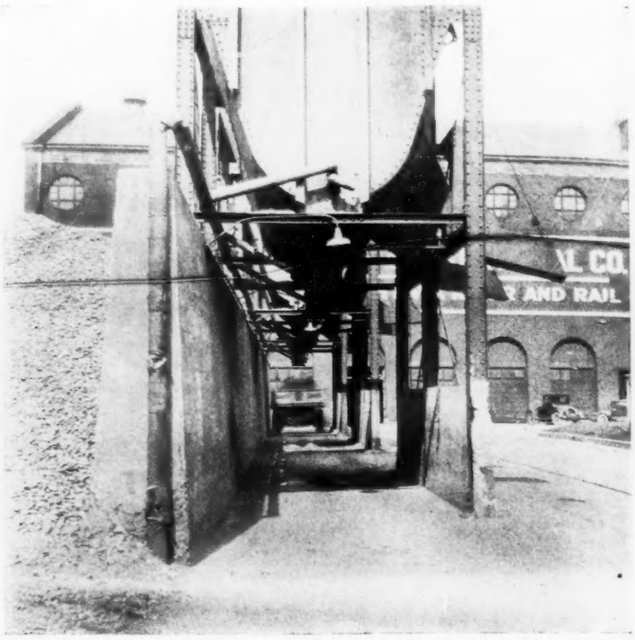
makes. It is situated almost at the apex of the triangle between the Allegheny and Monongehela rivers on which the older part of Pittsburgh stands and the land near it has been made into a small city park. The plant is so well kept that it is quite in harmony with the park surrounding it.

to the steel hoppers from which trucks are loaded.

The concrete bins have a combined capacity around 8000 tons. The steel loading hoppers are each divided into two compartments of 65 tons capacity. Gates of the segmental type allow the sand and gravel

proverbial pin and is kept looking that way.

The sand and gravel are heated in freezing weather, as is coming to be the custom in the large eastern cities, where concrete work goes on continuously regardless of what the thermometer may register. The heating plant is housed in a small building



Left—Rescreening plant for removing the last of the fines from gravel. Right—End of truck loading bins showing steam pipes for heating sand and gravel in winter

Left—Boiler house which has gas-fired boilers for heating sand and gravel. Right—Truck loading bins. Each has two compartments of 65 tons capacity

All the structures are of steel or concrete, including the office and scale house. The wharf itself is of massive concrete, a face wall protecting the bank from the river the entire length. A gantry crane, electrically driven, runs on a 16-ft. 6-in. gage track the entire length of the dock, and this crane is used not only to unload barges into the concrete supply bins but to load from the bins

to fall into the truck. As the material is thoroughly drained on the flush deck barge and afterward dried considerably by loading in and out of the bins, there is comparatively little moisture in it by the time it reaches the hoppers and there is none of the slop and spill that is usually found on the ground where sand and gravel are being loaded. Everything appears as neat as the

near the hoppers and it consists of a boiler fired by gas. Gas is a somewhat expensive fuel for this purpose, but it pays from the fact that it needs less attention and also that it can be thrown in or out of service quickly as the weather changes. Perhaps the most important reason for its use is its cleanliness. There is so much coal in the rivers about Pittsburgh that coal free gravel is at

a premium, and it is hard to keep coal out of gravel entirely where both are handled in the same plant.

A 4-in. line runs from the boilers to the hoppers which is reduced to 1½-in. at each hopper and further reduced to ¾-in. at the pipes which are in the body of the material.

Another feature of this plant is the re-screening plant which is placed at the end of the hoppers. This is used to rescreen all coarse gravel to free it from fines. The screen itself is a Morrow shaker, with ¾-in. perforations. Below the screen is a shaking plate and the shake of screen and plate being equal and in opposite directions one neutralizes the other so that there is little or no vibration on the frame.

The capacity of this screen is about 75 tons per hour. A 5-ton truck can thus be filled in four minutes, even when there is nothing in the bins below the screen.

The whole plant is surrounded by an iron fence with gates that look as though they were designed for someone's private grounds. All the walks and driveways are of concrete and a handsome and well kept lawn fills the space between the hoppers and the street.

Uses Oil Engines for Dredging Sand

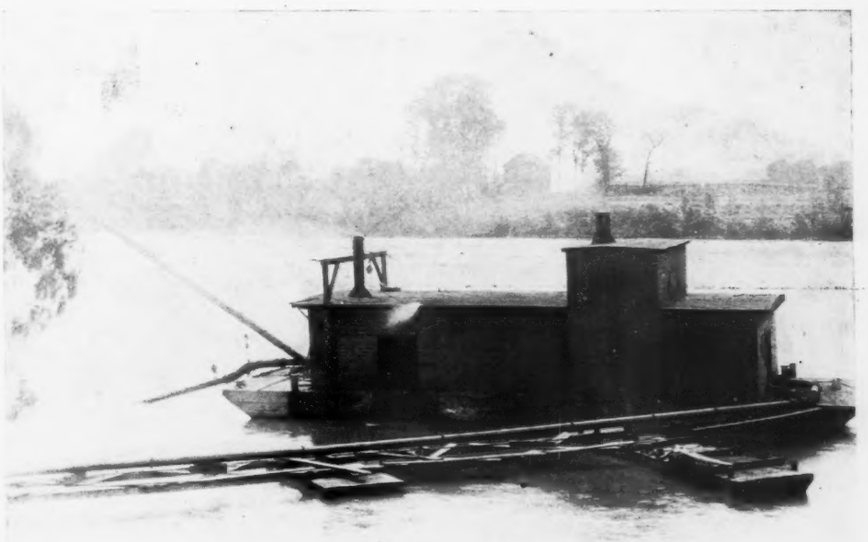
Kaw River Sand Company's Successful Employment of Semi-Diesel Engines — A Novel Plant for Unloading Sand Barges

THE Kaw River Sand Co., of Kansas City, Mo., is one of the large producers of the Middle West and its yellow trucks with the "kaw bird" (a humorous-appearing black crow) painted on their sides are familiar enough to Kansas City people. The company operates two plants on the Kaw river, some seven or eight miles out of the city, and dredges the sand from the bed of the Kaw.

The No. 2 plant has features which differentiate it considerably from the ordinary sand operation. The first of these is the use of dredges which are powered with oil engines and the second the use of a specially designed portable derrick which is used for unloading sand barges.

At both No. 1 and No. 2 plants dredges are used to pump sand directly to "tipples," as the washing and settling boxes are always called in the Kansas City district. But as these do not supply sufficient sand for the demands of the market, another dredge is employed in pumping sand to a barge which is then towed to a dock and the sand is unloaded directly into railroad cars for shipment.

There are two dredges with oil engines in service. Both of these have 10-in. American Manganese Steel Co.'s pumps driven by



Dredge powered with semi-Diesel oil engines

Left—Concrete wharf and unloading plant. Right—Tipple at No. 2 plant

oil engines of the semi-Diesel type. One engine is made by the Anderson Engine Co., the other by Fairbanks, Morse & Co. These engines resemble one another somewhat in appearance, being of the vertical type, adapted to marine construction.

Oil-burning towboat, Goodwin, and flush deck barge

The use of oil engines means a somewhat larger hull and a higher cabin than is needed with an electrically powered dredge, but not so large a hull as is necessary with a steam dredge.

The third dredge of the company's fleet has steam power, the engine being directly connected to a low-lift 10-in. American Manganese Steel Co.'s pump. This dredge is principally employed in pumping sand to barges.

The operators say that after some years of experience with oil dredges they prefer them for many reasons to either steam or electrically powered dredges. The labor needed is the same as for an electric dredge, but the fuel cost is so low that the entire operation is much cheaper than for an electric dredge and very much cheaper than for a steam dredge, which requires a fireman as well as a dredgemaster and an engineer. Repair costs have been light and the lost time from coaling up has been obviated. Major Bartlett, the president of the company, says that on no account would they consider the change from oil to another kind of power.

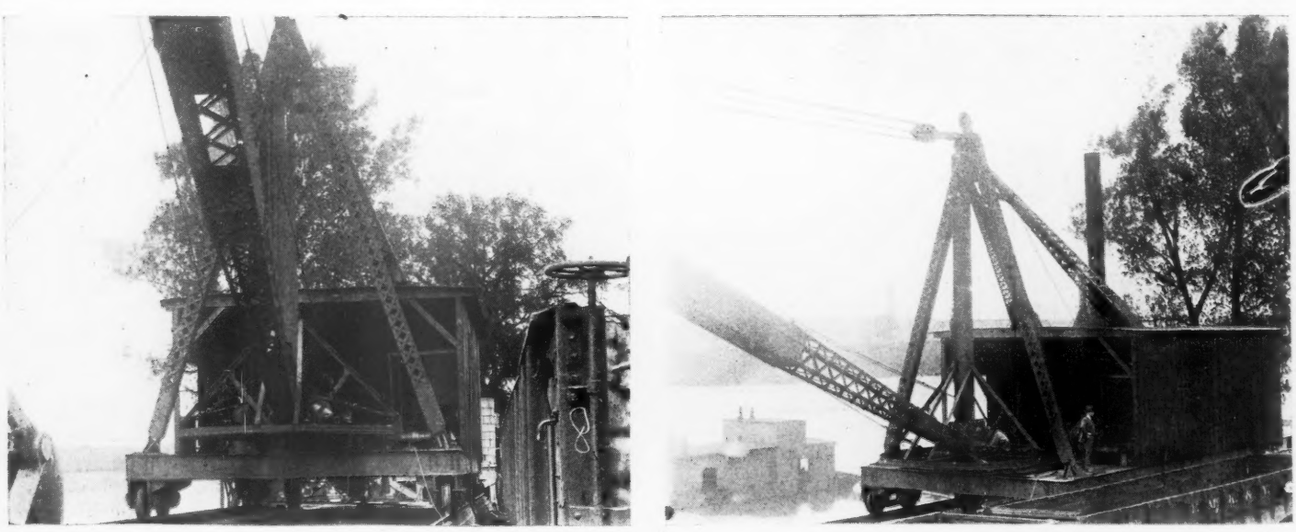
Oil engines are also used on the towboat Goodwin which brings the barges of sand from the dredge to the unloading plant. These are vertical marine engines made by the Kahlenberg Bros. Co. of Two Rivers, Wis., a type which is considerably used on the smaller sort of craft on the Great Lakes. They use a light but inexpensive oil and the oil consumption is so low as to be almost unbelievable. Of course the distance a barge is towed is short and not so many barges are towed, but a fuel consumption of 9 to 10 gallons of oil daily is nevertheless a remarkable figure for the work that is done. It speaks well for the design of the hull, as this is perhaps the most important factor of those that determine the power consumption of a boat.

The barges are of a type which has been in use for years on the Missouri and Kaw rivers for handling sand. They are flush deck, 80 ft. long and 26 ft. wide with a cargo box 2½ ft. deep. A false deck in the cargo box prevents injury to the main deck by the clamshell bucket which unloads the barge, and handholes and steam siphons permit any water which may leak in to be pumped from the hull. Each barge will load about 90 yd. or 135 tons.

The unloading plant consists of a portable derrick with an 80-ft. boom and a 3-yd. bucket. The derrick is carried on four two-wheel trucks that run on rails which have a 14-ft. gage. These rails are laid upon a substantial concrete trestle which forms a dock by the side of the river.

Power for the derrick is obtained from a 50-hp. Stroudsburg engine connected to a Kewanee boiler. Oil is used for fuel. Seven or eight barges a day are unloaded at present.

This machine, and, in fact, the whole unloading plant, was designed by Lee Heidenrath, consulting engineer of Kansas City. The machine was built by the Clyde Iron



Two views of the portable derrick which has an 80-ft. boom and handles a 3-yd. bucket and can load from barges to cars or across the railroad track to a stockpile

Left—Loading from stockpile to trucks for city delivery. Right—Stiffleg derrick for stockpiling from the tipple

works of Duluth, Minn.

The derrick boom is long enough so that it can reach over the cars on the loading track and deposit the sand on a stockpile. Sand from this pile is loaded either into cars or trucks by an Erie locomotive crane.

The sand which is unloaded from the barges is clean and ready for the market. The dredge carries its own screening equipment, a simple gravity screen which is sufficient to remove all trash and oversize material.

The sand from the "tipple" runs directly into cars. This sand may also be placed in a stockpile by unloading with a stiffleg derrick also made by the Clyde Iron works.

The tipple is also provided with a gravity screen and has a launder in which the sand is partially classified to remove dirt and unwanted fines.

The No. 1 plant of the company resembles in its general aspects the No. 2 plant, except that the unloading dock and portable derrick are omitted. It has the same sort of tipple and arrangements for truck and car loading and stockpiling.

The offices of the Kaw River Sand Co. are in the Railway Exchange building in Kansas City. Major Charles W. Bartlett is president of the company. He is well known in the sand and gravel industry throughout the United States from his attendance at conventions and similar meetings where his genial good nature has made him many friends. He is also prominent in the affairs of the American Legion.

The Crushed Rock Industry in Los Angeles

ALTHOUGH the rock industry in Los Angeles and vicinity ranks among the greatest of our commercial enterprises few individuals realize the tremendous growth of this business here during the last three years, said Charles McKinnis, principal owner of the Phillips quarry,

Major Charles W. Bartlett. president, Kaw River Sand Co.

near Corona, Calif., who stated that public improvements now under way here costing over $100,000,000 require about 60,000,000 tons of rock for their completion.

"Due to the fact that rock companies and quarries in the past have almost invariably been owned and operated by individuals or partnership, the public have heard but little of their operations, as they required no outside financing. This condition is now undergoing a rapid change because the growing rock demand necessitates quick expansion of operations now generally financed by bond brokers. An example of this is the recent million dollar bond issue of the Blue Diamond Co. financed by local houses.

"The $35,300,000 flood control now under way here will require tremendous quantities of rip-rap rock, the $17,000,000 government breakwater at San Pedro will require the placing of 14,000,000 tons of rock and the $15,000,000 of bonds voted by Los Angeles for harbor improvements, together with the $5,000,000 to be spent by Long Beach for the same purpose, will represent the largest rip-rap rock demand yet experienced by quarrymen in southern California," said the quarry operator. —*Los Angeles Express.*

New Kentucky Rock Asphalt Company Begins Production

THE Garfield Rock Asphalt Co., with headquarters in the Starks building, Louisville, has started operating its rock asphalt mines at Garfield, in Breckenridge county, Kentucky.

This company was formed several months ago, it being a syndicate of Louisville and Garfield capitalists. Some $30,000 has been expended in buying machinery and getting ready to operate the mines.

The 300 acres of land, which the company has leased, is located southwest of Garfield. Over 30 years ago, these same rock asphalt mines were operated by the Breckenridge Asphalt Co., which passed into liquidation several years ago.

A superior quality of rock asphalt is known to have come from these mines at Garfield. Some of the asphalt is still in use in St. Louis, Chicago, and New York, where it was sold for road construction 30 years or more ago.

The Garfield company already has 30 men employed at the mines. Mr. Benjamin, of Louisville, is superintendent of the operations, and the company intends to build a traction line from the mines into Garfield station from where the asphalt will be shipped. The sales will be made through the company's office in Louisville.—*Owensboro (Ky.) Messenger.*

Rock Products Industries Need More Technically Educated Men

The Engineer in Business

By Tyrrell B. Shertzer
Engineer-Manager, Ohio Dolomite Association, Columbus, Ohio

THE materials used in construction and manufacturing, either as components or as auxiliaries, are almost without number. Consumers cannot be expected to be familiar with the characteristics of all materials that might be used to their own advantage Some materials have been in use for centuries and, through long use, familiarity of a certain kind has been developed. In many cases, this familiarity is superficial and many properties have been taken for granted. It is human nature to follow lines of least resistance, and the fact that certain materials used in certain ways have given certain results has often prevented the adoption of other materials which could be used to better advantage, or modifications in the use of accepted materials.

The average producer is also prone to follow the lines of least resistance. If he can produce something for which he can find a market and keep his plant going, he does not, as a general rule, concern himself with trying to produce a higher grade material or finding new uses for his products.

The more known about the materials upon which the strength of a structure or the economy and efficiency of a process depend, the more intelligently, and economically, can they be used and the greater will be the benefits derived.

The Technical Man Is the Connecting Link in Business

The great problem of modern business may be stated about as follows: To supply the consumer with products which accomplish the desired purposes with the greatest efficiency and maximum economy.

It is obvious that this problem naturally divides itself into two phases:

1. To study the needs of the consumer with the idea of ascertaining whether he is using the materials best suited to his purposes both as to efficiency and economy.

2. To study the products to ascertain as to whether they are being produced as economically as possible and as to whether full advantage is being taken of all the possibilities.

It is easily seen that the technical man is the one to co-ordinate these two phases. For some products the technical man will be a chemist but in most cases he will be an engineer.

Modern business men are coming more and more to a realization of the fact that the day of creating demand for products through the medium of "goodfellowship" and "hot air" has passed. The consumer of today is "from Missouri" and must be shown wherein a material possesses certain advantages over other materials. In the great majority of instances, the evidence demanded can be supplied only by the technical man in the form of reliable and unquestionable data derived from tests, or investigations, conducted in such a manner as to be above suspicion.

What Is a Salesman?

Salesmanship may be defined as the art of supplying demand, either active or potential, under conditions satisfactory to the purchaser. It has become pretty well recognized among thinking business men that it is poor salesmanship either to misrepresent the commodity to be sold or to force unnecessary buying.

Super-salesmanship is the art of either creating a new demand through demonstrating the adaptability of a product for a new use, or demonstrating that a product cannot be economically replaced by a substitute.

A person with ordinary business training can become a good salesman, but it requires technical training and ability to become a super-salesman, in most instances. The function of the general manager, or sales manager, of a production organization is in reality that of a super-salesman. It is self-evident that a person must be a salesman, in the ordinary sense of the word, before he can become a super-salesman.

While the writer was an engineering student, his class was addressed by one of the most successful engineers of the country. During the course of his remarks, this engineer made two statements which have left a great impression, and which nearly a quarter of a century's experience, and observation, have fully verified. The first was to the effect that a good engineer should have about 50% of ordinary horse-sense and about 25% each of business acumen and technical ability. The second was that the triangle should be the emblem of the engineer, the apex point to be HONESTY and the base points CHARACTER and ABILITY. No one will deny that the same criteria should be applied to anyone holding an executive or administrative position in any organization.

A real engineer is temperamentally, and by training, highly analytical and wants to know the *why* and *wherefore* of every problem that comes to his attention; and will make no decision until he has satisfied himself. Modern business is after all an analytical study of supply and demand.

The rapidly growing tendency among business men to form associations and to support expert technical staffs, for the study of their problems and the dissemination of the information thus gained, is an acknowledgment of the value of the technical man to industry.

The New Point of View

Some of the older school business men are inclined to consider the technical man merely as a source of "highbrow" scientific information, and as being utterly impracticable in business matters. Fortunately this point of view is passing, as evidenced by the increasing recognition of the value of the technical man both in association work and in the more progressive business organizations. The technical man has proven his worth, not only as a source of scientific information, but also along the lines of general business administration.

Suspends Increase of Rates on Missouri Lime

AN order suspending for 120 days increases in freight rates on carload shipments of lime between points in Missouri, proposed by the Missouri Pacific Railroad Co., has been issued by the State Public Service Commission.

An investigation to determine if the proposed increases are reasonable and legal will be made by the commission during the time of suspension, it was announced.—*St. Louis Globe-Democrat.*

Improvements and Additions Make Dixie A Most Modern Cement Mill

Wet Grinding Substituted for Dry Grinding and Many Other Changes, Including a New Power Plant

IN the past year the Dixie Portland Cement Co. of Chattanooga, Tenn., has made a number of notable improvements and additions to its plant which have not only increased the output from 4500 bbl. to 6000 bbl. per day but which have increased the permanency of the plant and added to the efficiency of the operation. These improvements comprise the opening of a new quarry, the building of a new crushing plant and of a rock storage plant and the substitution of wet for dry grinding (and wetting of the ground materials to make slurry) and the building of a wet grinding plant. Additions have also been made to the power plant.

Rebuilt and improved plant of the Dixie Portland Cement Co. at Richard City, Tenn.

The opening of the new quarry and the work of building the crushing plant were described in the May 19, 1923, issue of ROCK PRODUCTS. Since that date the quarry has been put into full operation and work in the old quarry discontinued. The crushing plant has been put in service and is operating very efficiently. The wet grinding plant was nearing completion at the time of the writer's visit in May and will soon be put in service, and the new power plant is functioning well.

The present quarry face is opened for about 900 ft. and is 65 ft. high. Holes are put down with three Keystone and one Sanderson-Cyclone well drills and are spaced 18 ft. from the face and 30 ft. apart. The explosive used for blasting is du Pont gelatine, the gelatine being necessary to give good fragmentation. A shot will bring down from 80,000 to 100,000 tons with this system and very little pop shooting is required to complete the fragmentation.

Three Porter steam locomotives bring the quarry trains to the crushing plant. The cars are all of steel and are built at the plant. The design of these cars, which was developed at the plant, is shown in one of the illustrations.

The new primary crushing plant is a steel structure with a concrete base and steel roof. The crusher is a No. 42 McCully gyratory and it is set so that the mouth is just below the track level. The floor and all that part of the building which surrounds the crusher is of concrete.

The crushed rock goes by a system of conveyors to the scalping screen which is in the upper part of the secondary crushing plant also new. This (Worthington) screen has 2-in. perforations and the oversize goes to crushing rolls, while the undersize goes either to rock storage or to the raw grind plant.

The Worthington rolls which crush the oversize of this screen are of unusual size, being 72-in. in diameter and having faces 30 in. wide. The steadiness with which they run and their freedom from vibration is attested by the photograph which is a 4-second time exposure made while the rolls were running.

What is perhaps even more noteworthy is the steadiness and freedom from side motion of the various belt conveyors. All of these have Stearns ball bearing idlers and troughing rolls and the spacing between the rolls is unusually close—in this case 3 ft. 6 in. Owing to the abundant idlers and the rigid steel structure on which they are supported, these conveyors run in a nearly perfect manner.

Conveyor construction of this kind may be expensive but it must certainly pay in lessening the wear on belts and the time lost in making conveyor repairs.

The steam shovels were still excavating the big pit for rock storage at the time of the writer's visit, although the pouring of the concrete columns which will support the craneway and superstructure was going on. The rock will be brought to storage by a belt conveyor and then placed by a Shepard traveling crane. It will be recovered later by a belt conveyor which will be installed in a tunnel below. The storage space is 80x240 ft. on the ground and it will hold 30,000 tons.

In the new raw grinding plant the crushed stone goes first to two No. 106 Smidth kominuters and then to two Trix mills and is given its final grinding in two 7x27-ft. Smidth tube mills. These are all driven by individual motors, both of General Electric and Westinghouse make. The tube mills each take 500 hp. and the kominuters 300 hp.

The wet grinding plant is housed in a fine structure of steel and concrete. The blending tank or basin is of reinforced concrete and built into the building at the end. This basin has a capacity of 3200 bbls. The basin is provided with agitators of the usual stirring arm type, together with air agitators.

The old raw grind plant which the new plant supersedes ground the materials dry and then mixed them with water to make a slurry.

From the slurry tanks the mixture goes to the eight storage tanks which are behind the wet grinding plant. These are built of reinforced concrete and have a capacity of 7,200 bbls., and are also provided with agitators. From these the slurry is pumped to the kilns.

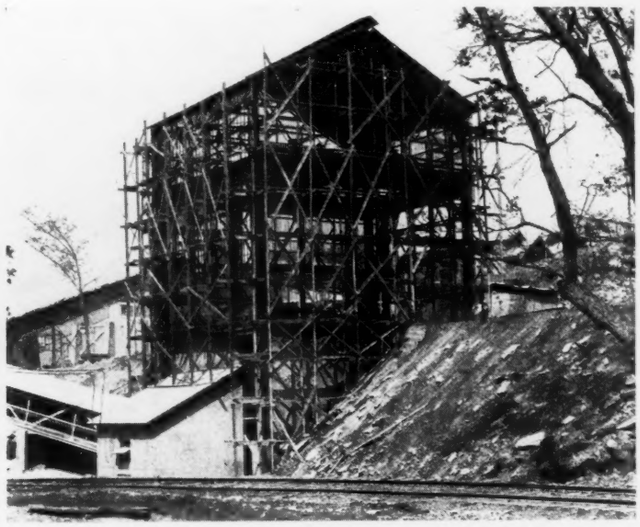
There are eight kilns, each being 110 ft. long and 8 ft. in diameter. Only six were in operation at the time of the writer's visit, the other two waiting until the new wet grinding plant should be in operation. They are fired by powdered coal, the system of coal crushing and feeding being one that was developed at this plant. Except for details it is not so different from the typical system described by Richard K. Meade in the May 3 and May 17 issues of Rock Products.

From the kilns the clinker goes to coolers which discharge into a pit. The cooled clinker is raised by two elevators, one for each kiln, to the bins from which it is fed to the finish-grind machines. These are situated in a building beyond the kiln house and there are 20 Griffin mills and two tube mills employed in this work. From the finish grind plant the cement goes by an overhead belt conveyor to the sacking and storage plants still farther along.

The power plant is one of the most important improvements concluded during the year. It is housed in a well built structure of steel and concrete, the sides being almost wholly of glass in metal sashes. There are three Babcock and Wilcox boilers, each 700 hp. which are fired by Westinghouse underfeed stokers. These furnish steam to a 1200-kw. Westinghouse turbo-generator set. Everything about this plant shows careful design, and the fullest use is made of automatic and heat-saving devices to reduce labor and to increase the plant efficiency. All exposed steam piping is covered with 80% magnesia insulation.

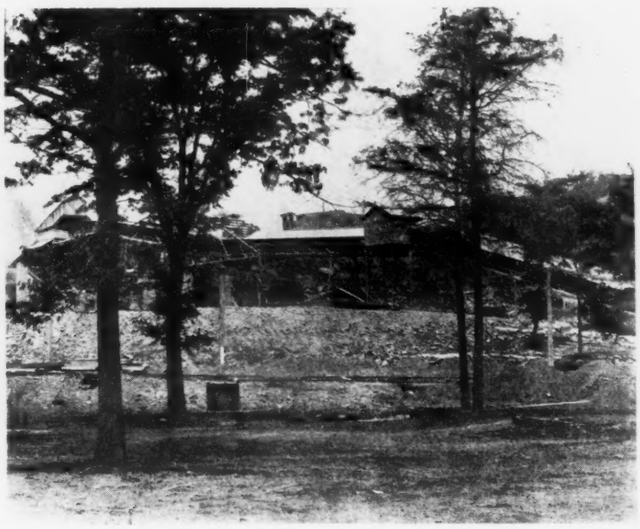
The Dixie plant is an old one but it has been to all intents rebuilt, so important are the additions and improvements that have been made. And one cannot commend too highly the design and the substantial construction of the new parts of the plant. This is due to the efforts of W. H. Klein, the plant superintendent who has not only designed the additions but who has superintended their construc-

Locomotive and steel quarry cars

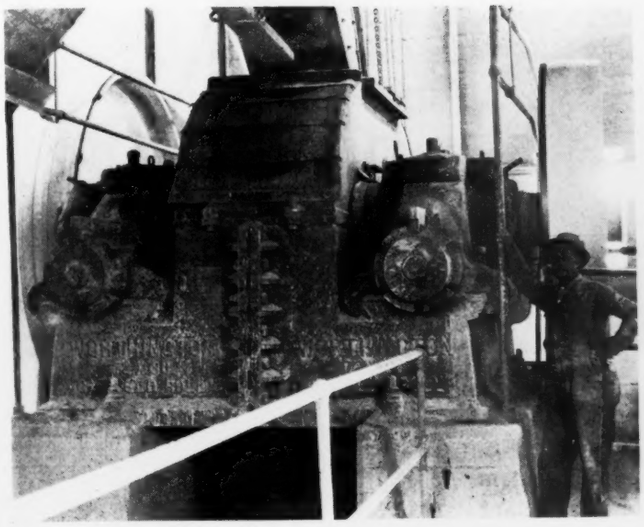


Building for No. 42 crusher—View taken during construction

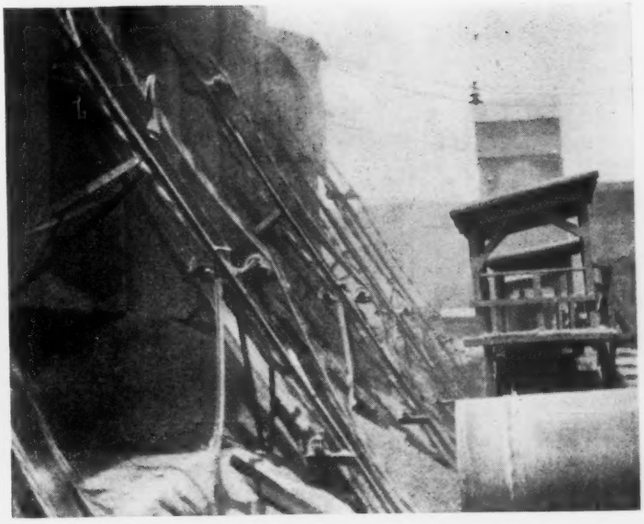
Pit for rock storage and conveyor gallery to wet-grinding plant



Conveying system from primary to secondary crusher

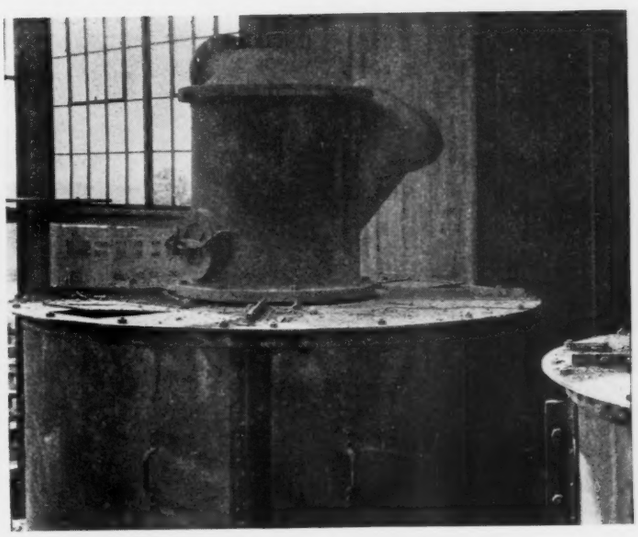


The 72-in. rolls for secondary crushing



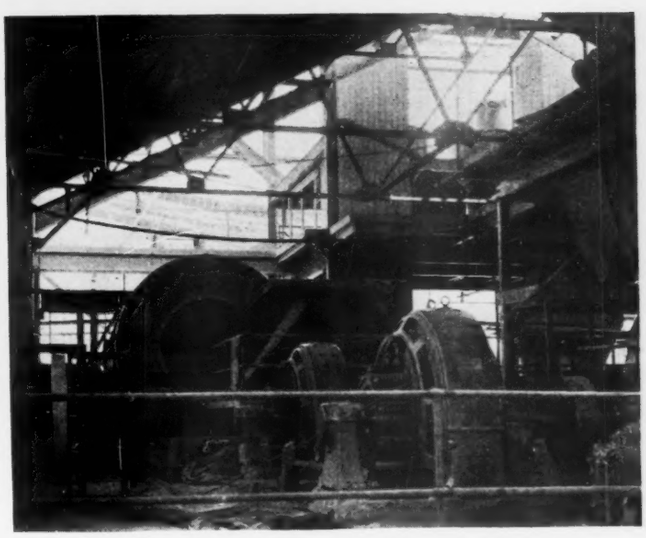
Elevators for clinker from the coolers to finish-grinding plant

No. 42 gyratory crusher

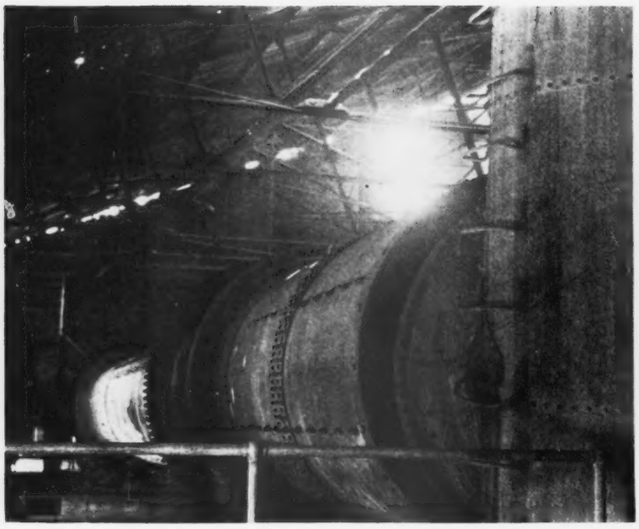


One of two trix mills in new wet-grinding plant

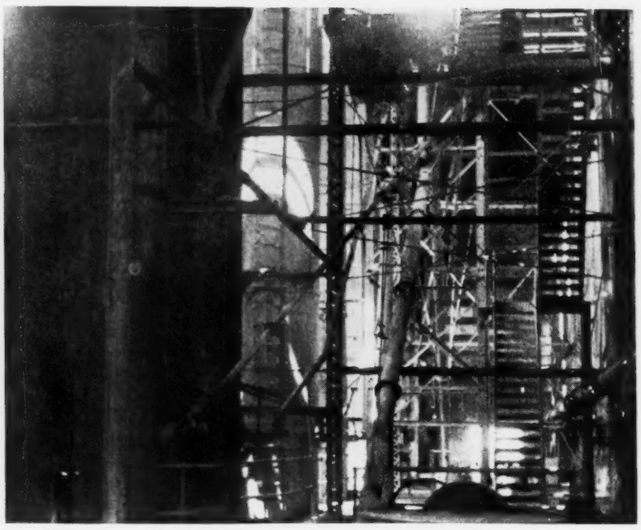
Kominuter with side open



The 500-hp. motors that drive tube mills



One of the kilns that are 7 ft. in diameter and 110 ft. long



End of kiln room showing pipes through which slurry is pumped to kilns

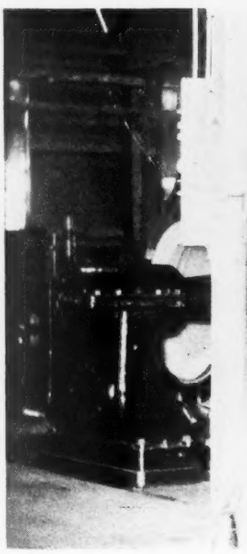
tion and brought them into efficient operation.

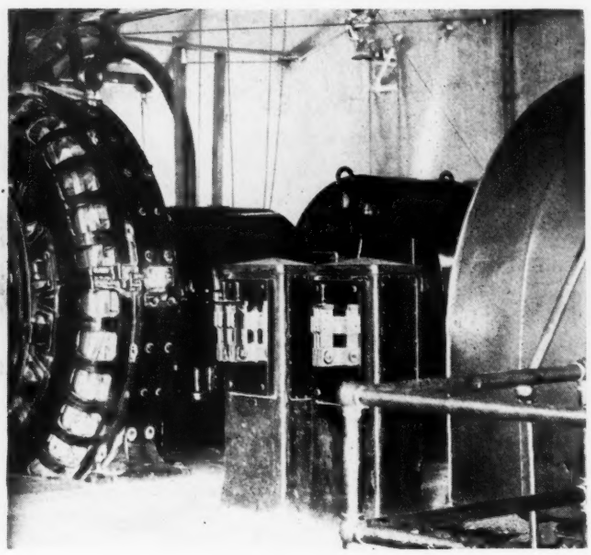
The main offices of the Dixie Portland Cement Co. are at Chattanooga, Tenn. The officers are Richard Hardy, president; G. W. Millen, vice-president, and George Kilian, secretary-treasurer. A. E. Legg is chemist and J. H. Dalby, sales manager.

New North Carolina Rock Products Company

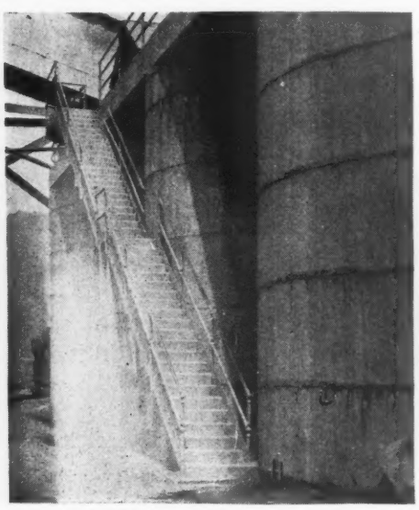
K. B. JOHNSON and J. B. Johnson of Cardenas, and Don Allen of Raleigh, N. C., have formed a company to engage in rock products enterprises. Purposes of the company, as stated in the charter, are to search for minerals, sulphurs, phosphates, marls, and other minerals.

Lands will be bought, improved, developed and maintained as well as sold and leased. Stock will be issued in any class that stockholders of voting power may deem proper.—*Greensboro (N. C.) News.*



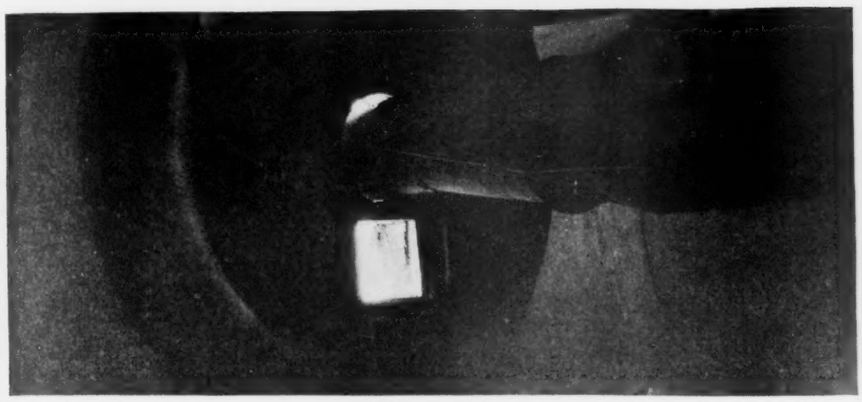


Turbo generator in power plant

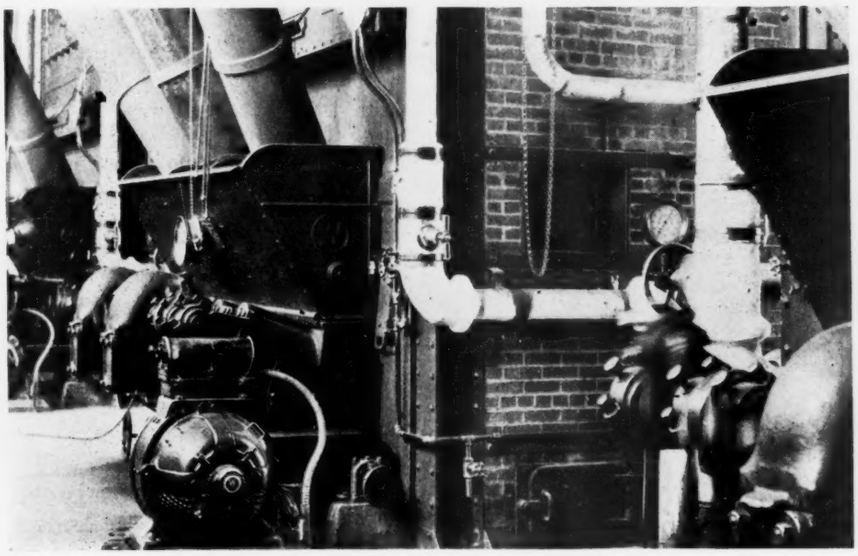


Correction tanks

Conveyor to stock house from finish-grinding plant



End view of one of the kilns showing the conical end of the burner for pulverized coal. The coal-burning system was developed at the plant



View in the power house showing the boilers with underfed stokers. All pipes are covered to prevent condensation losses

New office building of the Dixie Portland Cement Co. at Richard City, Tenn. Of course it is built of concrete

Failure of Concrete Roads from Dirty Aggregates

CONCRETE roads, like other concrete structures, have disintegrated because defective materials have been used. Projects have been constructed in spite of laboratory reports condemning the fine aggregate, and these projects have shown signs of disintegration within a comparatively short period after opening them to traffic. Dirty aggregates, especially those containing clay-covered particles, organic matter in the sand, fine aggregate which has too high a percentage of fine particles and clay, all have been used in concrete road construction, and all have resulted in poor concrete. Screenings for use as a fine aggregate are to be looked on with considerable suspicion and certainly when they are permitted their grading must be governed so as to insure a workable concrete which will not contain a high percentage of dust.

There is no excuse for poor concrete roads from any of the above causes. Unfortunately, however, careless or ignorant inspection coupled with studied neglect of laboratory warning has resulted in poor materials being used in a number of concrete roads in the past. The disintegrating effect of certain types of alkali, principally the sulphates of sodium, potassium and magnesium, are well established, and cases are on record in our Western districts in which alkali seems to have played a prominent part in causing rapid disintegration of certain concrete pavements. As the alkali must reach the pavement through capillary action, it would seem that where concrete pavements are to be laid on a soil highly charged with alkali salts there should be interposed between the concrete and the underlying soil a layer of material having low capillary action. Several inches of sand should be quite effective for this purpose.—*A. T. Goldbeck, U. S. Bureau of Public Roads in Roads & Streets.*

Another Missouri Gravel Plant

WHAT is considered one of the greatest road material supply stations will be opened in Livingston county, Missouri, within the next few days. The project is being developed by L. C. Hudson and E. C. Johnson of Hale, Mo. Seven contracts for gravel have already been signed for—the material to be furnished by this pit. The railroad company is constructing a siding at Sampsel, where it will be loaded and shipped. A twenty-thousand-dollar plant will be constructed by the company for mining and handling the material. It has been conservatively estimated that one million yards of gravel is contained in the pit. The gravel pit has been approved by the State Highway Department and will be used for surfacing work. The firm expects to ship gravel in less than 30 days.—*Hale (Mo.) Leader.*

Installs New Stone Storage Plant

Ohio Hydrate and Supply Co. Adds Unusual Storage Facilities and Large Primary Crusher to Its Equipment

By J. Lewis Luckenbach
Construction Engineer, Haddon Heights, N. J.

IN the place of the methods generally used in separating the fines from kiln stone stock, the arrangement recently installed by the Ohio Hydrate and Supply Co., Woodville, Ohio, reduces the expense and trouble of this operation and procures uniform clean stone for the kilns. The result of this is a more uniform grade of lime, and it eliminates to a great extent the "white heads" resulting from an improper mixture of irregular size stone in the shaft of the kiln. Uniform size stone also greatly facilities the combustion of the fuel, and the elimination of the carbon dioxide gas from the stone, and dispenses with unnecessary labor or machinery by reason of the absence of "cores" or "white-heads." The fines are separated at once into commercial sizes of crushed stone.

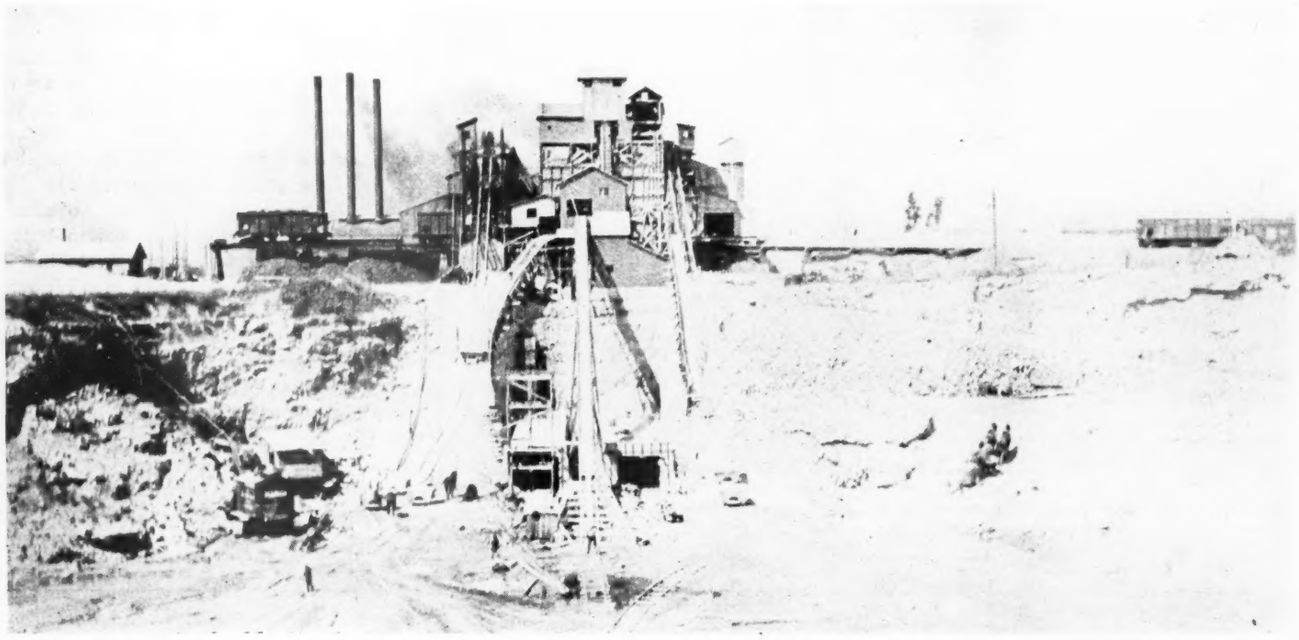
A 60x84-in. Traylor jaw crusher has been purchased and will be installed as a primary crusher. The location of this will be in the quarry, and below the quarry floor and excavation for it has already begun. It is the intention as soon as the crusher is ready to use a 4-yd. electric shovel and 6-ton standard gage quarry cars drawn by steam locomotives for handling the stone from the quarry to the crusher, and to abandon the present hand labor method. The cars will dump onto a feeder which can be controlled at will, and the feed to the plant thus regulated.

The crusher is of an unusually large size for the plant. It was selected because the rock cubes off in blasting in large boulders, as shown in the photograph. In order to operate the crushing plant economically a large electric shovel operation is required and the tonnage of the crusher is such that it will require but a few hours' operation in order to supply the needs for both kilns and crushed stone trade. There is an additional advantage in this large crusher in that it can meet any demand above the ordinary requirements that might arise.

At the present time quarry cars of 2½ tons capacity, of the gable type, are loaded by the usual hand method with all sizes of rock from dust to kiln stone. This obviates the necessity of having two separate gangs, one for loading fines, and one for loading kiln stone, and increases the capacity of the quarry for both kiln stone and commercial crushed stone.

After the cars are loaded, they are drawn by horses to the new runway where they are hauled up the incline to the main hopper, and dumped. The contents pass over a 3½x3½-in. Robins Cataract grizzly which separates the kiln stone from the fines, by passing the larger pieces over the grizzly and discharging them to the kiln stone storage pocket below. The fines pass through the grizzly and discharge into a continuous bucket elevator, which in turn discharges the fines into a revolving screen over the present frame storage bin. This screen separates the stone into the various trade sizes from dust to 3-in. The oversize from the screen is chuted to a 36-in. Symons disk crusher below, where it is re-crushed to any desired size from dust to 2-in. and discharged again into the same elevator which carries it again to the screen.

The kiln stone storage pocket has the advantage of supplying stone for the kilns on rainy days, holidays, or during delays in the quarry. It could supply enough stone to keep the kilns going for a week uninterruptedly, this being a valuable asset to the plant, as lime is the major product. The pocket can also be filled from any point on

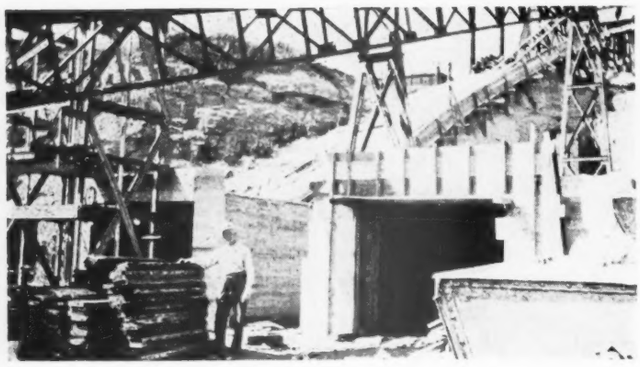


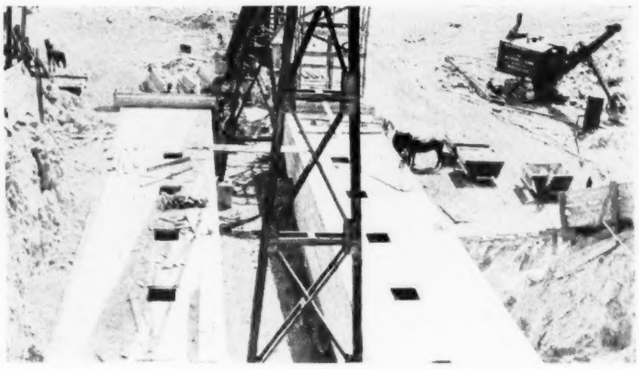
View of plant from the south showing runway and stone storage with tunnel entrances in front

A steam shovel will soon replace this hand loading of cars. The excavation in front is for the new primary crusher

Left—Car loading and block holing. Right—What determined the size of the primary crusher

Left—New 200-ton elevator. Center—The writer, with J. R. Reaver, superintendent, in front of old plant. Right—The new elevator and frame storage bin which is to be replaced by a concrete bin





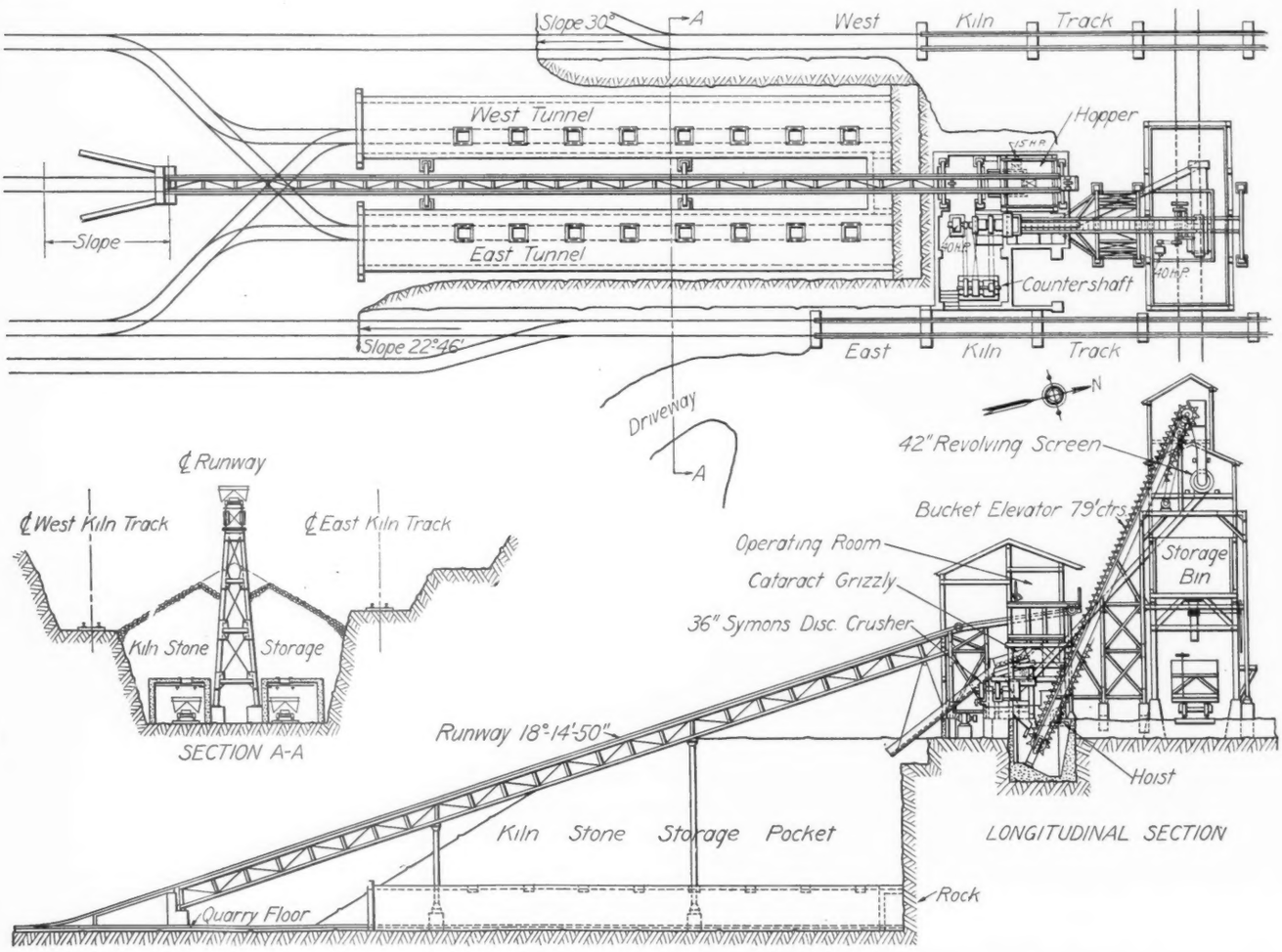
Left—The mouth of the tunnels. Right—Looking down into the kiln stone storage pocket showing the opening over the track in the tunnels

the runway, and also from either kiln track by the use of side dump cars.

If the necessity should arise for a large run of crushed stone it may be met by using a by-pass located in front of the grizzly. This chutes the material directly to the elevator, and thence to the screen, and the grizzly remains inoperative. The main hopper is also located so that if it should be desired, all fines may be chuted to the Symons disk crusher directly and the entire output passed through it. As this necessity is of rare occurrence, the layout was so designed as to reduce the re-crushing to a minimum, making all separations by the screen as much as possible, thus preventing an overload and excessive wear and tear on the crusher. Only one operator will be required to operate the runway, grizzly, crusher and elevator, provision having been made for his visual observation at all times of all the machinery under his control.

The kiln stone storage pocket is provided with two reinforced concrete tunnels, with an interchangeable track system, in order that stone from either tunnel may be transferred to either kiln track, each track supplying 12 of the 24 kilns in use. The kilns are of the vertical shaft type, 12 ft. 6 in. in diameter, and have an average output of 15 tons of burned lime per day.

The gates for the openings in the tunnels are of the flat scissors type, made of wood plank and reinforced with steel wearing plates. The lever connections are located at a convenient point from each opening in



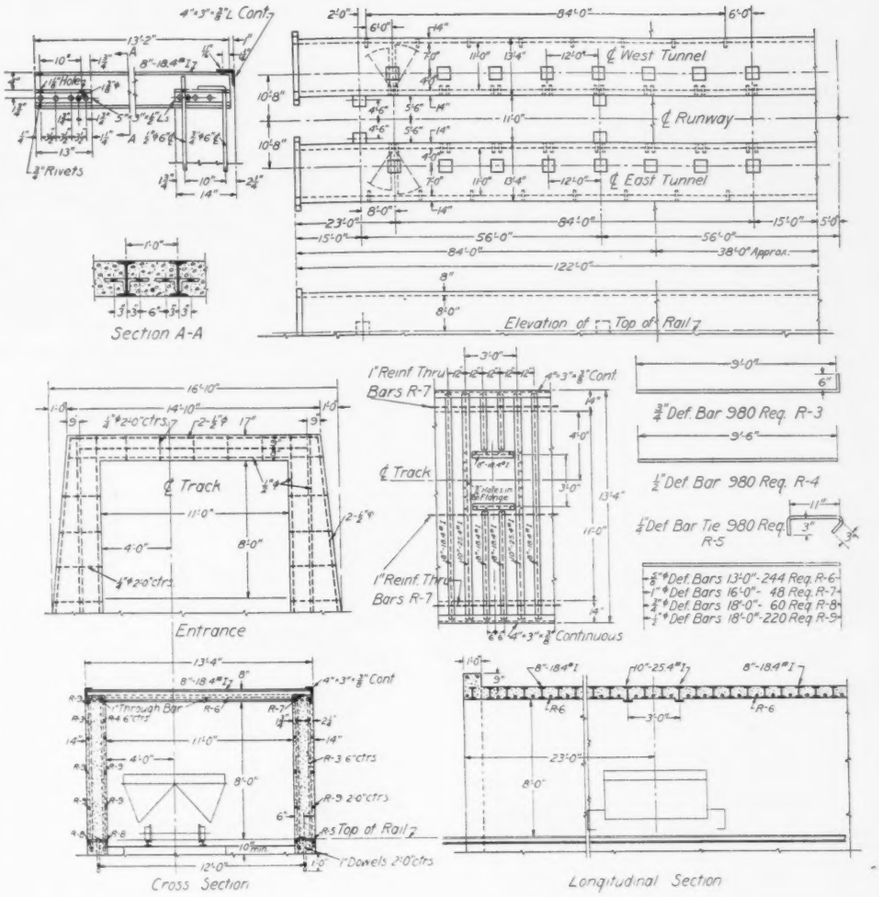
Plan, longitudinal section and cross section of storage, crushed stone screening plant and runway

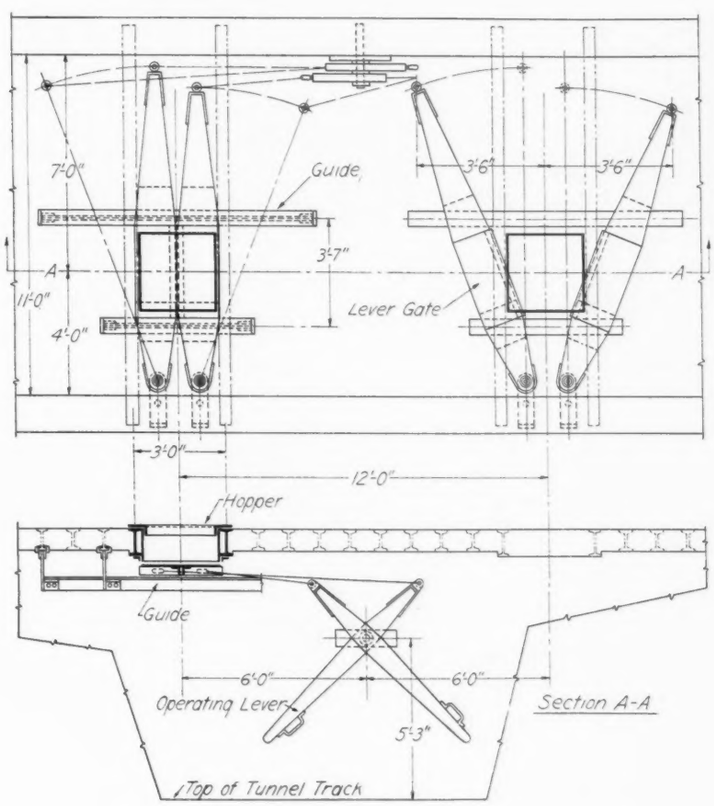
order that the operator may be in no danger from the spill of falling stone into the cars, only one man is required to operate a gate, and he can remain in the one position for both opening and closing. An iron handle is placed on the lever at the point of maximum grip so as to make operation easy, thus preventing an overflow of stone.

The tunnels are of reinforced concrete with a steel I-beam roof filled in with concrete. This is reinforced for the purpose of having a steel wearing surface on the top, and overcoming the abrasive effects of the stone. The openings are also steel lined and re-placable.

The new primary crusher will be set from 7 to 8 in. and the discharge carried by a continuous bucket elevator to a primary storage bin of reinforced concrete, located adjacent to the primary crusher in the quarry. The run of crusher stone will first pass over a bar grizzly with 5½-in. spaces, and the oversize (kiln stone) will be chuted into a kiln storage bin for each kiln track. The fines from the bar grizzly will pass over another grizzly of about 3-in. setting, and the oversize from this will pass into a bin for stone between 4 and 5 in. The fines from the 3-in. grizzly will be chuted into a bin for sizes from 3 in. to dust.

A future distributing storage bin of reinforced concrete will be located at the top of the runway, and will span two railroad track sidings. This will have a combined capacity between 2000 and 3000 tons of assorted size stone. The stone (from 3 in. to dust size) will be brought up by the quarry cars from the bin below and discharged into the main hopper above which is shown in the cut. This will by-pass the Robins grizzly and discharge directly into the elevator, which in turn will discharge into a revolving screen of much larger size. The operation from this point will be similar to the present operation already described.



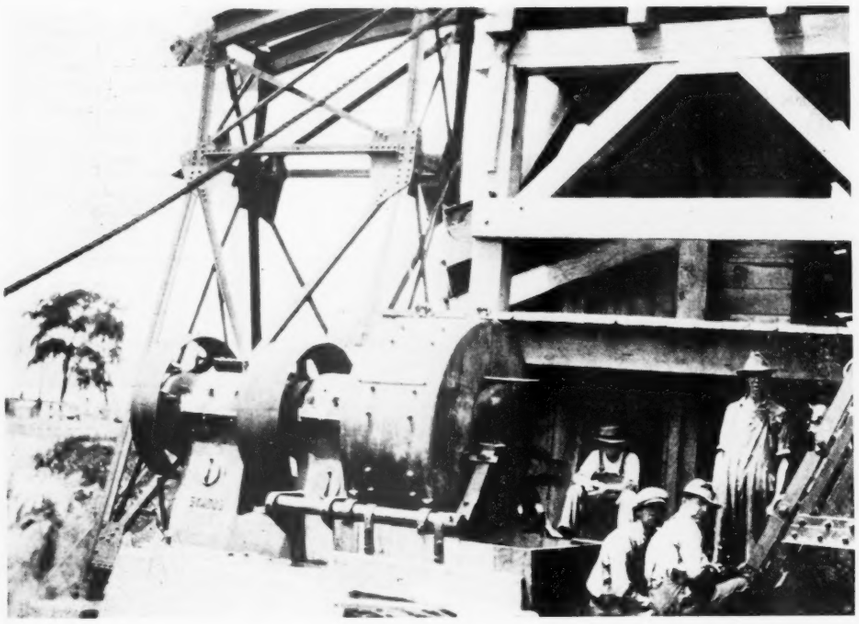


Above—Details of tunnel construction. Below—Construction of shears gate

The runway track will be extended across the two railroad tracks for the purpose of loading stone of any size from the primary storage bin directly to the railroad cars. It is expected that this work will be carried out sometime during the next year. The slope of the runway to both the east and west kilns will be lessened to the slope of the new runway which is a little over 18 deg., the present east runway being 22½ deg., and the west runway as much as 30 deg. The capacity of the pocket under the present conditions will be approximately 5000 tons.

All machinery is electrically operated from 440-volt, 60-cycle, 3-phase current supplied by the Lake Shore Electric Railway Co., by its 33,000-volt line. A transformer station has been erected at the plant.

The elevator was furnished by the Jeffrey Manufacturing Co., the grizzly by the Robins Conveying Belt Co. and the Symons disk crusher by Chalmers and Williams. The motor for the primary crusher is a Westing-



Recrushing unit during erection, showing partial view of runway and main hopper, cataract grizzly, disk crusher, and 200-ton continuous bucket elevator

house 350-hp. of the slip ring, three bearing type; the other motors were made by the Ideal Electric and Manufacturing Co. and the Lincoln Electric Co.

The steelwork was by the Massillon Bridge and Structural Co. and all other work and material was furnished by the regular plant organization of the company.

The engineering work was under the direction of the writer.

The president of the Ohio Hydrate and Supply Co. is E. G. Baker. F. L. Mauntler is vice-president and Fred Witmer is secretary and sales agent. Joseph R. Reaver is general superintendent of the plant. The main office of the company is at Woodville, Ohio.

Talc in North Carolina

IN general, it may be said of talc products that they are in two general divisions; what is called true talc is a magnesium silicate; there is, however, an aluminum silicate, pyrophyllite, which, while chemically distinct, has practically every use of which magnesium talc is capable; and this valuable substance is found in only two or three deposits in the world, the chief of which lies in Moore and Chatham counties, North Carolina.

The area of occurrence in these counties is in a strip about 22 miles long by two to three miles wide. It is the only commercial deposit in the United States, and while there has been mining of other deposits at Conception Bay, Canada, and on Vancouver Island none of these is now being worked.

At present there is one company operating in this field, which has a long history. The Standard Mineral Co. is now working the deposits of pyrophyllite, which occur as lenticular bodies in volcanic rocks of pre-Cambrian age. The deposits have a clearage pitch of from 50 to 60 deg. and the method of working has been by open cuts. Although only this company is operating at present, there has been recent production by the Talc Products Co. at Glendon, which is planning to resume operations, and the Pyro Talc Co., which has bought properties in the field and plans to begin mining this fall.

In addition to shipments of pyrophyllite for the many familiar commercial uses to which it is put, some of the Moore county product has been experimentally prepared as a floating powder, which was sold at very fancy prices. In the Moore field it is estimated that there is available pyrophyllite sufficient to keep the mills running for 100 years. Mining has been going on there intermittently since days preceding the Civil War, Ebenezer Emmons, state geologist, having described it in his Geology of the Midland Counties as early as 1856.

True talc has at times been produced in quantities in the state, although the chief production is now in New York state. It has come chiefly from Cherokee and Swain counties and has been worked at Marshall in Madison county, and is also found in Ashe and some other western counties. True talc occurs in lenses and masses similar to those carrying pyrophyllite, but is associated with limestone. In the limestone there have been developed magnesium minerals, such as tremolite and actinolite. The true talc is formed by alterations of these minerals, especially tremolite, directly into talc.

In soapstone, a talc product, there is little North Carolina production at present. It is not pure enough for ground products, as is pyrophyllite or talc, and it is used where it can be handled in blocks or masses. The chief center of soapstone production is Louisa county, Virginia, although there are small deposits in a number of North Carolina localities.

That there is reason to believe that the potentialities of talc products in the state will be realized is shown in the marked recovery in the business last year. In 1923 there were produced 6491 tons, valued at $89,290, as against $29,049 in 1922, and only $17,048 in 1921. Last year, in fact, was the record in value of production, and prospective new operations make it practically certain that talc products in the state will this year be of largely increased importance. —*Natural Resources.*

Lime Specifications for Silica Brick

FOR LIME to be used in the manufacture of silica brick the standard of quality is set at 92% in specifications prepared by the Bureau of Standards, Department of Commerce. This percentage is based on the non-volatile matter in the lime. Maximum limits of 5 and 10% carbon dioxide are set, depending on whether the sample is taken at point of shipment or at destination.

These specifications, together with a brief description of the way in which lime is used in the manufacture of silica brick, are embodied in Circular 153 of the Bureau of Standards entitled "Recommended Specifications for Quicklime and Hydrated Lime for the Manufacture of Silica Brick." Complete directions for sampling and testing are also given. Copies of this circular may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C. The price is 5 cents.

Hearing on Missouri Cement Rates

A JOINT hearing by the Interstate Commerce Commission and State Public Service Commission of Missouri will be held at Hotel Jefferson in St. Louis on November 11 on proposed rate increases by the Missouri Pacific Railroad Co. on carload shipments of lime and cement between Missouri points. The State Public Service Commission recently suspended the tariff carrying the proposed increase pending a hearing. —*St. Louis Post-Dispatch.*

Facts About Peat

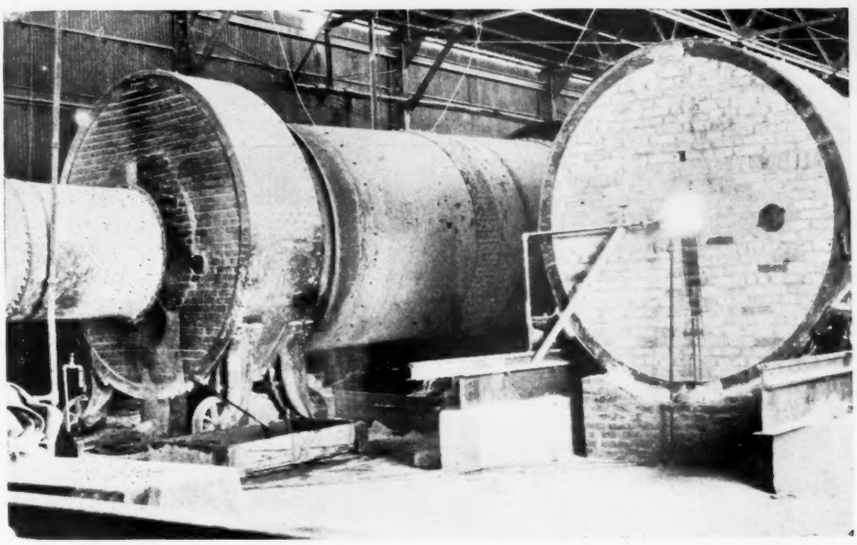
AN interesting booklet published by the Canadian Department of Mines, Ottawa, Canada, is Facts About Peat. This tells of the various attempts that have been made to "process" peat to produce some sort of new fuel from it, all of which have so far been failures. The conclusion is reached that the only successful method of preparation is that of air drying and that this method offers an opportunity to add considerably to Canada's fuel resources.

Editorial Journeys East

By Nathan C. Rockwood
Editor-Manager, Rock Products

WE referred in our editorial correspondence of October 4 to the new rotary kiln installation at the Vermarco Lime Co. plant, West Rutland, Vt. Herewith are two views of this new unit. This plant is chiefly notable in the lime industry because it uses waste marble as a raw material, and because it manufactures a high calcium lime from which an acceptable finishing hydrate is made.

Other limestones in this general locality are burned in rotary kilns because they crumble so badly while calcining that it is practically impossible to burn them in shaft kilns. The marble used at the Vermarco company plant is exceedingly fine grained and tough and does not crumble, but the kiln feed is reduced to granular size and smaller by a hammer mill. The operation is therefore notable as possibly the only rotary lime-kiln plant where the stone is pulverized before being fed to the kiln, although in the other rotary-kiln plants referred to the lime is reduced to granular or pulverized form in its course through the kiln.

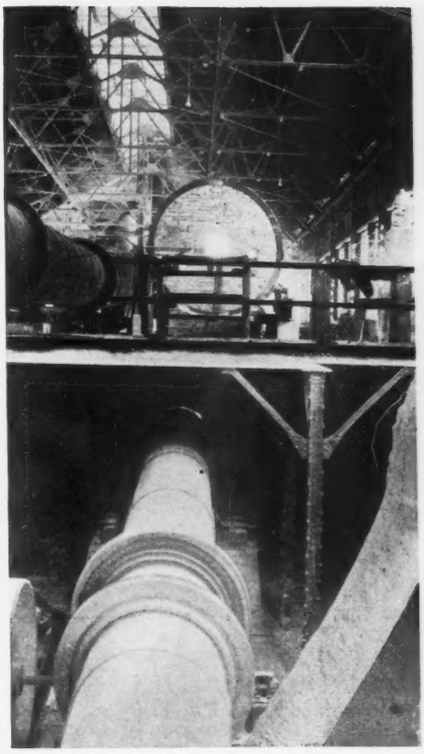


Old 120-ft. rotary lime kiln at the Vermarco Lime Co. plant at left; new kiln at the right. Both are equipped with oil burners although gas producer and main have been left on old kiln to use when desired or when necessary

Bureau of Mines Experiment Station

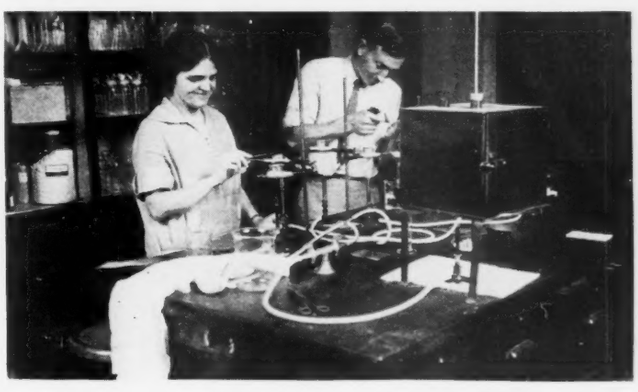
Reference was also made in the October 4 issue to the new Non-Metallics Experiment Station of the United States Bureau of Mines at New Brunswick, N. J., directed by Dr. Oliver Bowles. A view of the laboratory is shown here and two of Dr. Bowles' assistants.

Some of the problems employing the research assistance of this laboratory and the experiment station staff include: (1) Drilling and broaching in slate quarries, the work on which has been completed and the results published. (2) Quarry and manufacturing problems in the lime industry, which comprise mining limestone and the manufacture of lime from small sizes of stone, work on which is still in progress, and the results of which the editor feels sure are likely to have an almost revolutionary effect on lime manufacturing methods. If commercial equipment can be made to carry out laboratory results we shall have an interesting development in lime manufacture to record in the near future. (3) New uses for non-metallic minerals, a report of which has been published. (4) Utilization of anhy-



Kiln with cooler below

Four windows on lower floor at right open into new Bureau of Mines Non-Metallic Experiment Station, Ceramics Building, Rutgers University, New Brunswick, N. J.



Dr. Marie Farnsworth, specialist in physical chemistry, who is making a study of the utilization of anhydrite; E. E. Berger, assistant—two of Dr. Bowles' staff at the Experiment Station

Quarry of the F. E. Conley Stone Co., Munns, N. Y., visited by New York State Crushed Stone Association, September 24

drite (gypsum), a laboratory study which may lead to a much larger knowledge of both gypsum and limestones and their utilization. (5) Mapping and recording sources of gypsum, anhydrite and limestone for dusting coal mines. (6) Studies of grinding flint, feldspar, milling garnet, etc.

Dusting Coal Mines

It will be noted that many of these problems are of vital interest to several rock products industries. One of very general interest is the survey of sources of limestone and gypsum for dusting coal mines, because of the agitation in some quarters to promote the sale of small pulverizers and the use of shale dust by coal-mine operators.

We are reliably informed that practically none of the shales found in proximity to American coal deposits is suitable for use in dusting coal mines, although under similar conditions pulverized shale has been employed in Great Britain. American shales are all too highly silicious for one reason, and for another they all contain *some coal.*

Obviously it would be folly to attempt to prevent mine explosions with a dust that is partly an explosive material itself. And spreading dust high in silica to be breathed by miners is so contrary to all health experts' advice that we may expect to see it prohibited by law.

New York Quarry Men on Excursion

The New York Crushed Stone Association has been holding meetings throughout the year at various places near the operations of its members, and excursions to those operations and a general good time have been important factors in making the meetings and the association successful. It was the good fortune of the writer to

Visitors at the quarry; the host, F. E. Conley, is the gentleman in the center of the picture

Group of members of the New York Crushed Stone Association at the plant of the Boonville Sand and Gravel Co., Boonville, N. Y. Second from the right in the lower row is host, Harold Owens, and standing at the extreme right is J. H. Wagoner, superintendent of the plant

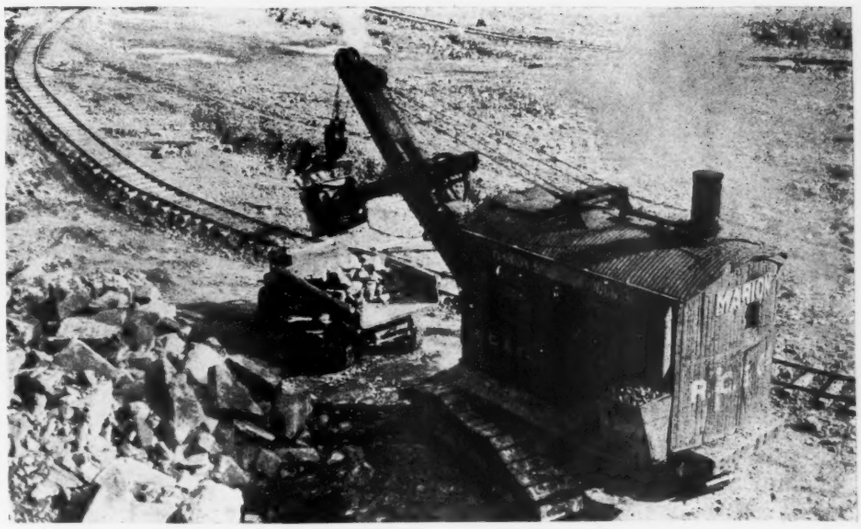
attend one of these meetings at Oneida, N. Y., on September 24.

Following a business session and luncheon at Oneida an excursion was made to the quarry and crushing plant of the F. E. Conley Stone Co. at Munns. This limestone quarry is remarkable for its high clean face and ease of operation. While the limestone strata are horizontal, as we find them in practically all Central States quarries, the quarry is on a high bluff overlooking a beautiful valley, instead of being a hole in the ground, as are the quarries farther west.

From Munns the party proceeded to Boonville to inspect the sand and gravel plant of the Boonville Sand and Gravel Co. Harold Owens, general manager of this company, also operates the Peerless Quarries, Inc., at Oriskany Falls, N. Y., and is a member of the association. Here one of the finest sand and gravel deposits, and one of the most interesting operations, in the United States was studied with much interest by the stone men.

Auburn Quarry

On the way home to Chicago a short stop was made at the Auburn, N. Y., quarry of the Rock-Cut Stone Co., Syracuse, N. Y. Here, in order to supplement the quarry railway transportation system, two Autocar trucks have been employed for the past two seasons with remarkably satisfactory results. The quarry floor is smooth and offers a good roadbed for both railway and truck ways, but there are in this quarry as in every quarry odd corners to be worked which involve considerable track laying and relaying to reach with tracks. It was primarily to avoid track laying into these corners that the motor trucks were introduced. They also supplement production by adding 300 to 400 tons a day to the stone moved by rail, which is helpful in times of big demand. The trucks themselves appear little the worse for their two-years' service and have never broken down in service.



Auburn quarry of the Rock-Cut Stone Co., Syracuse, N. Y., showing use of motor trucks to supplement with transportation system in quarry

General view of the Auburn quarry of the Rock-Cut Stone Co.

Stucco Dash Manufacturers Are Enlarging Plant

INCREASE of capitalization from $30,000 to $125,000 was announced Saturday by the Flint-Rock Co., with offices in the Fourth street arcade, Dayton, and factory at Ingomar, Ohio. New buildings under construction at the plant are expected to be completed within three months.

The firm manufactures stucco and magnesite products, including composition flooring and granite dashes. The granite dash is manufactured from granite boulders, which cover a strip of country running through Preble county. The rocks are in terminal moraines.

The Flint-Rock Co. was originated in 1919. Mr. Spayd, the president, organized a small company to crush granite boulders brought in by the farmers from their land and to manufacture stucco. The boulders are graded into 12 different colors. In 1921 the company was incorporated to manufacture magnesite products in addition to the regular line. Since then the company has grown until its products are in demand throughout the United States.

Officers of the company are: Mr. Spayd, president and treasurer; W. W. Summers, secretary, and George F. Jacobs, general manager.—*Dayton (Ohio) Herald.*

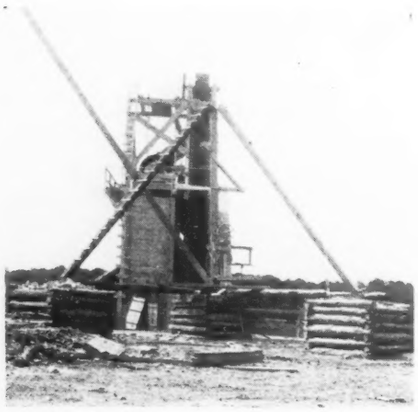
Wage Rates in the Building Trades

THE shortage of men in the building trades precludes the possibility of lower wage rates for a number of years, according to Wm. J. Moore of the Provident American Bond and Mortgage Co. The only hope of lower building costs in the immediate future lies in cheaper materials and increased labor efficiency. To reduce building wages materially the supply of labor will need to be increased from 30 to 50% and this cannot happen except gradually over a period of years.

Hints and Helps for Superintendents

A Simple Stiffleg Derrick

A SIMPLE form of stiffleg derrick that can be made at the quarry is shown in the accompanying picture. The foundations for the mast and the stifflegs are cribs of logs about 5 ft. high and 6 ft. square filled with large pieces of broken stone. These resist motion by the weight of the mass. The mast, stifflegs and boom are all simple squared timbers and they are armored at the ends with steel plate to keep them from splitting.



A simple stiffleg derrick with hand winch useful for making changes about the plant

This derrick is only intended for occasional use, to serve the crushing plant, which shows in the rear, in making repairs, installing new machinery, etc. It also changes a cart body for a water tank. For this reason speed is not essential and so sufficient power can be obtained from a hand winch turned by two men. The derrick is at the Rosedale plant of the Kansas City Quarries Co., Kansas City, Mo.

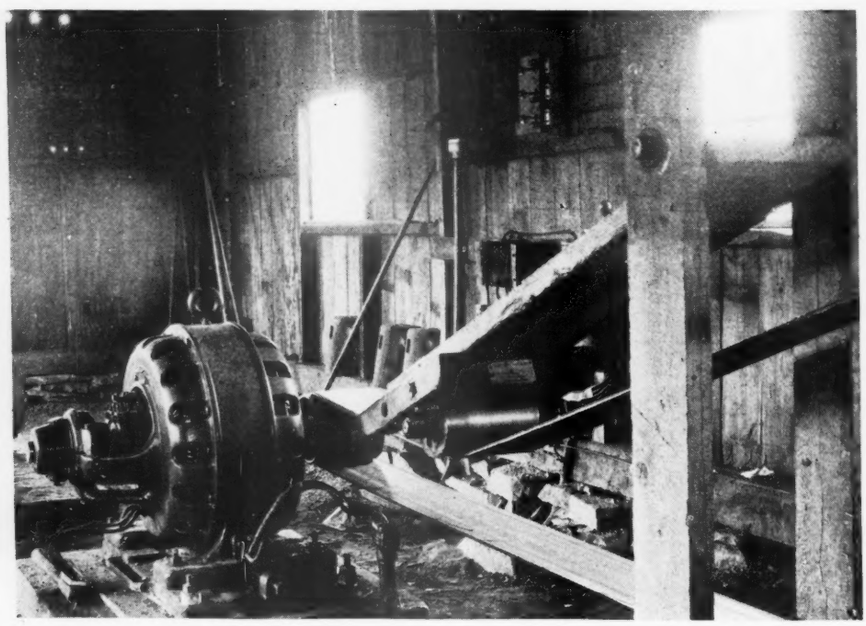
A Simple "Home Made" Belt Tightener

A SIMPLE but effective belt tightener, such as can be made at the plant, is shown in the accompanying photograph. The tightener pulley, which in this case is an ordinary cast-iron pulley or roller, is placed on the under side of a plank, the bearings for the short shaft that holds the pulley being fastened to blocks that are bolted to the plank. The other end of the plank is bolted between two posts in such a way that the plank is free to move up and down. The weight of the plank and pulley keeps the belt tight.

The size of the pulley used in this arrangement is not important so long as the face is wider than the belt.

The use of belt tighteners is to be avoided wherever possible as they wear the belt and the belt never runs so well with one as it does where the machines are properly set to accommodate the belt. This means that there must be a sufficient distance between pulley centers to insure a good "wrap" or arc of contact and also that the motor is on the right side of the drive to bring the tension on the under side of the belt.

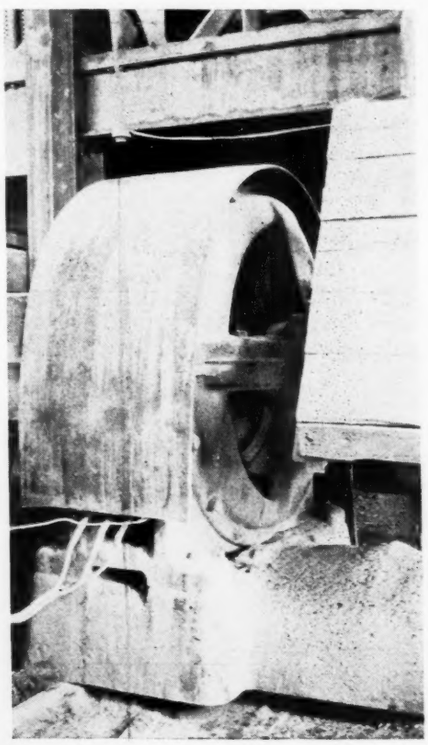
But whenever these conditions cannot be had without too much expense it is better to use a tightener pulley than to run with too tight a belt, which is wasteful of power, hard on the belt and liable to burn out a bearing.



This "home made" belt tightener is made of a plank carrying a roller. The plank is free to move up and down and its weight holds the belt tight

Another Use for Old Belting

VARIOUS uses of old belting have been shown, from time to time on these pages, the greater part of these being to use pieces of old belts to protect something about the plant. The present instance is of the same sort. It is a motor cover made of a piece of old belt wide enough to cover the machine. No fastenings are needed, the weight of the belt being sufficient to hold it in place.



A useful cover for protecting a motor is made of a piece of old belt

The picture was taken at the Cedar Cliff quarry of the New York Trap Rock Co. The dust collected on the part of the motor frame that is not covered shows the advantage of covering the more important parts of the machine, especially when it can be done without expense.

How to Avoid Injuring Wire Rope by Careless Handling

THE destructive causes that shorten the life of wire rope can all be avoided by adhering to a few simple rules and practices, which might be summarized somewhat as follows:

1. Use care and judgment when unloading heavy coils and reels so as not to injure the rope.
2. Do not let wire rope coils or reels lie in water.
3. Do not expose wire rope to the direct rays of the sun or to the elements for a long time before using. Keep under shelter unti. ready to use.
4. In uncoiling wire rope avoid kinks. Kinks are bound to occur and ruin a rope if an attempt is made to pull out the loop by exerting tension.
5. Avoid abrasion. This calls for careful and frequent inspection.
6. Use sheaves and drums of proper diameter to prevent excessive bending of the rope.
7. Avoid reverse and short bends wherever possible.
8. Use thimbles in connection with attachments wherever possible.
9. Do not run wire rope over sheaves having broken flanges.
10. Do not run wire rope over sheaves having eccentric bearings or where the bore of sheave has been worn eccentric. Constant vibration due to eccentricity of bore or bearing is bound to crystallize the rope.
11. Align the sheaves properly so as to avoid unnecessary chafing.
12. Align the hoist drums with lead sheaves so that the rope will wind properly on drum.
13. Avoid careless operation.
14. Avoid unnecessary whipping and dropping of the rope.
15. Thoroughly lubricate the wire rope with a lubricant which will not only penetrate to the hemp center, but will also thoroughly cover the inside wires of the strands.

The first four points in the above list warn against careless handling that damages wire rope before it is even placed in service.

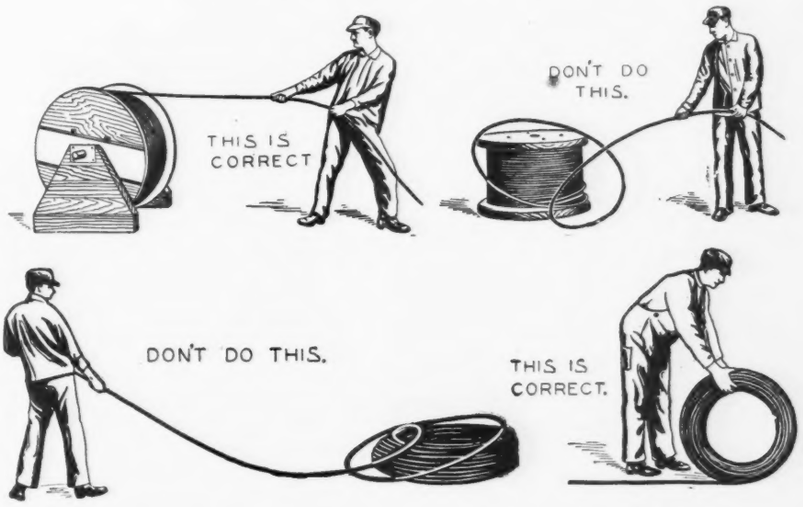
Large wire rope reels are sometimes dropped from cars, regardless of the obstruction which may lie in the way of the reel. Many a wire rope has been injured by thus coming in contact with a sharp rock or other form of obstruction. The proper way to unload a reel or heavy coil of rope is to bring several heavy planks or timbers on an incline up to the side of the car and then lower the reel or coil to the ground by slowly rolling or sliding it down the inclined timbers.

Wire rope is sometimes ruined by dropping the reel or coil into water containing acid or other destructive agencies. Rope exposed to the elements for any considerable length of time before being put into service will have a tendency to rust. If exposed to the sun for a long time the core will have a tendency to dry out, thus reducing the wearing quality of the rope. Placing rope under shelter before putting into service is strongly recommended.

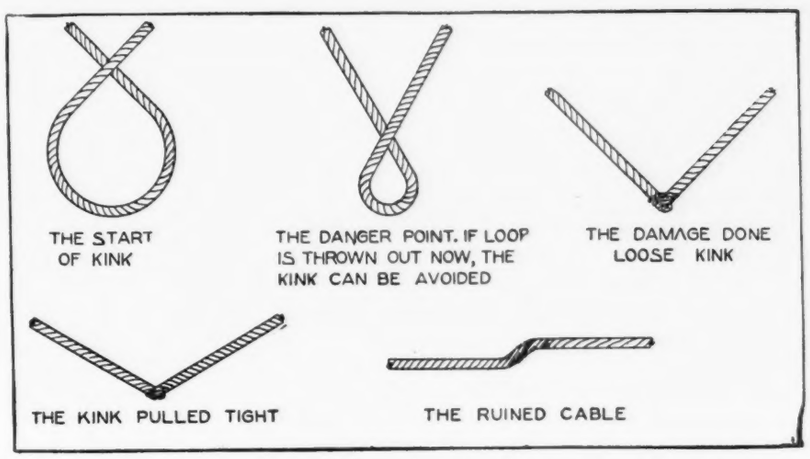
Kinking the rope by careless uncoiling is another common abuse. The coil should always be held in a vertical position and rolled along the ground like a wheel. If on a reel, mount the reel so that it will revolve and run the rope off straight ahead.

Fig. 3 shows how a kink is produced from a simple loop in the rope. These loops should be carefully guarded against and thrown out before much pull is brought on the rope. A straight pull on the rope only draws the loop more tightly into a kink. Then the damage is done, and later, when the rope is carefully straightened out, wires will be found broken and strands twisted out of place.

Dragging the rope over sharp obstructions and making short bends when putting the rope in place also come under the heading of careless handling and should be avoided. —*Sauerman News.*



Above—The right and wrong way of pulling a rope from a reel. Below—The wrong and right way of taking rope from a coil. Note that in both cases the wrong way is sure to result in a kink that will ruin the rope


THE START OF KINK
THE DANGER POINT. IF LOOP IS THROWN OUT NOW, THE KINK CAN BE AVOIDED
THE DAMAGE DONE LOOSE KINK
THE KINK PULLED TIGHT
THE RUINED CABLE

This shows how a wire cable may be ruined by pulling a loop into a kink that breaks the wires

Sorting Cement Rock by Blasting Methods

AT a Southern cement plant some difficulty was encountered with a streak of dolomite which came into the quarry face as the work progressed.

Blasting this down with the rest of the face so mixed the dolomite with the limestone that considerable sorting was required to get a sufficiently clean stone for making cement. In order to simplify this sorting the well drill holes in the quarry were loaded heavily above and below the dolomite streak and filled with tamping where they passed through the dolomite. This left the dolomite in large lumps, after the blast, so that it could be easily sorted out.

Usually the lumps of dolomite left by this method were large enough so that the sorting could be done by the steam shovel as it loaded the quarry cars.

Figures of Portland Cement Production for September

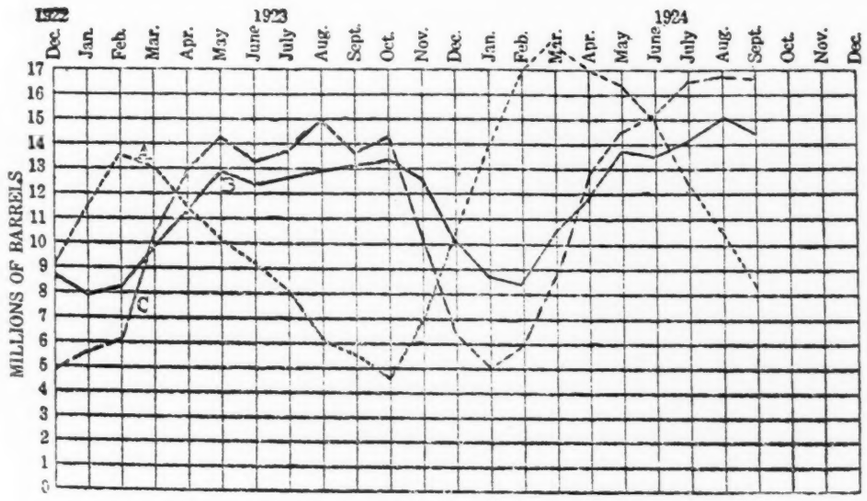
THE following tables, prepared under the direction of Ernest F. Burchard of the Geological Survey, are based mainly on the reports of producers of portland cement but in part on estimates. The estimates for September, 1924, were made necessary by the lack of returns from two plants. Shipments in September maintained their high level while production decreased, but was at a higher rate than in any month except August. Stocks are over 51% higher than in September, 1923.

Stocks of clinker, or unground cement, at the mills at the end of September, 1924, amounted to about 4,275,000 bbl. compared with 5,367,000 bbl. (revised) at the beginning of the month.

The Bureau of Foreign and Domestic Commerce of the Department of Commerce reports that the imports of hydraulic cement in August, 1924, amounted to 192,634 bbl., valued at $305,690. The total imports in 1923 amounted to 1,678,636 bbl., valued at $2,964,098.

The imports in August were from Belgium, 104,756 bbl.; Norway, 51,967 bbl.; Denmark, 20,160 bbl.; Netherlands, 5999 bbl.; England, 3485 bbl.; Sweden, 2794 bbl.; Canada, 2722 bbl.; France, 626 bbl.; Japan, 125 bbl. The imports were received in the following districts: Hawaii, 63,173 bbl.; Los Angeles, 50,084 bbl.; Porto Rico, 23,217 bbl.; Washington, 21,655 bbl.; San Francisco, 11,206 bbl.; New Orleans, 9484 bbl.; Massachusetts, 5296 bbl.; Oregon, 5165 bbl.; Vermont, 1698 bbl.; New York, 632 bbl.; St. Lawrence, 506 bbl.; other districts, 518 bbl.

The exports of hydraulic cement in August, 1924, were 85,883 bbl., valued at $251,904, of which there were sent to South America 32,964 bbl.; to Cuba, 25,444 bbl.; to the other West Indies, 5106 bbl.; Central America, 13,136 bbl.; Mexico, 7102 bbl.; Canada, 982 bbl.; and to other countries, 1149 bbl. These exports are exclusive of shipments to the following possessions: Alaska, 1679 bbl.; Hawaii, 1455 bbl.; Porto Rico, 7834 bbl.


1922
1923
1924
Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.
MILLIONS OF BARRELS
17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0
A
B
C

(A) Stocks of finished portland cement at factories. (B) Production of finished portland cement. (C) Shipments of finished portland cement from factories

PRODUCTION, SHIPMENTS, AND STOCKS OF FINISHED PORTLAND CEMENT, BY DISTRICTS, IN SEPTEMBER, 1923-1924, AND STOCKS IN AUGUST, 1924, IN BARRELS

Commercial District	Production—September 1923	Production—September 1924	Shipments—September 1923	Shipments—September 1924	Stocks at end September 1923	Stocks at end September 1924	Stocks at end August 1924*
East. Pa., N. J., Md.	3,293,000	3,528,000	3,780,000	4,247,000	1,635,000	1,373,000	2,092,000
New York	726,000	765,000	788,000	901,000	513,000	509,000	645,000
Ohio, West. Pa., W. Va.	1,327,000	1,628,000	1,495,000	1,752,000	304,000	895,000	1,018,000
Michigan	876,000	986,000	838,000	1,169,000	232,000	338,000	521,000
Wis.,† Ill., Ind., Ky.	1,893,000	2,128,000	1,927,000	2,825,000	395,000	857,000	1,554,000
Va., Tenn., Ala., Ga.	779,000	1,083,000	731,000	1,138,000	279,000	359,000	414,000
East. Mo., Ia., Minn.	1,367,000	1,478,000	1,408,000	1,777,000	622,000	1,747,000	2,046,000
W. Mo., Neb., Kan., Okl.	1,009,000	1,009,000	1,001,000	1,043,000	652,000	1,108,000	1,142,000
Texas	367,000	343,000	305,000	380,000	221,000	207,000	245,000
Colorado, Utah	293,000	262,000	244,000	269,000	163,000	184,000	191,000
California	909,000	1,015,000	874,000	1,011,000	256,000	338,000	334,000
Ore., Wash., Mont.	270,000	294,000	307,000	315,000	261,000	443,000	464,000
	13,109,000	14,519,000	13,698,000	16,827,000	5,533,000	8,358,000	10,666,000

*Revised. †Began producing June, 1924.

PRODUCTION, SHIPMENTS, AND STOCKS OF FINISHED PORTLAND CEMENT, BY MONTHS, IN 1923-1924, IN BARRELS

Month	Production 1923	Production 1924	Shipments 1923	Shipments 1924	Stocks at end of month 1923	Stocks at end of month 1924
January	7,990,000	8,788,000	5,628,000	5,210,000	11,477,000	14,155,000
February	8,210,000	8,588,000	6,090,000	5,933,000	13,596,000	16,815,000
March	9,880,000	10,370,000	10,326,000	8,995,000	13,045,000	18,189,000
First quarter	26,080,000	27,746,000	22,044,000	20,138,000	.....	.....
April	11,359,000	11,726,000	12,954,000	12,771,000	11,463,000	17,159,000
May	12,910,000	13,777,000	14,257,000	14,551,000	10,144,000	16,403,000
June	12,382,000	13,538,000	13,307,000	15,036,000	9,168,000	14,903,000
Second quarter	36,651,000	39,041,000	40,518,000	42,358,000	.....	.....
July	12,620,000	14,029,000	13,712,000	16,614,000	8,081,000	12,319,000
August	12,967,000	15,128,000	14,971,000	16,855,000	6,080,000	*10,666,000
September	13,109,000	14,519,000	13,698,000	16,827,000	5,533,000	8,358,000
Third quarter	38,696,000	43,676,000	42,381,000	50,296,000	.....	.....
October	13,350,000	.....	14,285,000	.....	4,612,000	.....
November	12,603,000	.....	10,251,000	.....	6,991,000	.....
December	9,997,000	.....	6,408,000	.....	10,900,370	.....
Fourth quarter	35,950,000	.....	30,944,000	.....	.....	.....
Preliminary total	137,377,000	.....	135,887,000	.....	.....	.....
Amt. of under estimate	83,238	.....	25,118	.....	.....	.....
Final total	137,460,238	.....	135,912,118	.....	.....	.....

*Revised.

IMPORTS AND EXPORTS OF HYDRAULIC CEMENT, BY MONTHS, IN 1923 AND 1924, IN BARRELS*

Month	Imports 1923	Imports 1924	Exports 1923	Exports 1924
January	71,686	153,732	74,169	88,586
February	20,529	162,930	88,531	62,606
March	66,521	160,517	98,861	91,224
April	76,899	148,138	85,662	83,200
May	88,480	161,304	103,634	88,850
June	111,559	196,655	77,203	74,064
July	286,106	109,098	82,774	60,139
August	324,008	192,634	73,201	85,883
September	215,785	‡	77,121	‡
October	172,051	.....	74,302	.....
November	140,590	.....	85,743	.....
December	104,422	.....	80,487	.....
	1,678,636	.....	1,001,688	.....

*Compiled from records of the Bureau of Foreign and Domestic Commerce. ‡Imports and exports in September, 1924, not available.

The following figures show shipments from portland cement mills distributed among the states to which cement was shipped during July, 1924. It is planned to publish in succeeding issues of this report similar figures for succeeding months and also for the preceding months back to October, 1923, when such figures were last published by the Portland Cement Association:

PORTLAND CEMENT SHIPPED FROM MILLS INTO STATES, IN JULY, 1924*

Shipped to—	Barrels
Alabama	212,720
Alaska	1,432
Arizona	30,474
Arkansas	129,334
California	942,273
Colorado	161,005
Connecticut	192,957
Delaware	46,078
District of Columbia	79.851
Florida	173,184
Georgia	107,824
Hawaii	5,451
Idaho	23,922
Illinois	1,533,330
Indiana	744,692
Iowa	401,855
Kansas	199,437
Kentucky	188,068
Louisiana	109,385
Maine	50,045
Maryland	218,371
Massachusetts	388,173
Michigan	1,205,309
Minnesota	405,863
Mississippi	41,506
Missouri	427.101
Montana	20,985
Nebraska	158,955
Nevada	8,806
New Hampshire	41,240
New Jersey	738,895
New Mexico	22,007
New York	2,041,145
North Carolina	259,730
North Dakota	72,154
Ohio	1,211,851
Oklahoma	177,823
Oregon	140,656
Pennsylvania	1,580,596
Porto Rico	.....
Rhode Island	60,649
South Carolina	42,238
South Dakota	70.244
Tennessee	148,173
Texas	388,590
Utah	55,413
Vermont	35,469
Virginia	156,644
Washington	179,521
West Virginia	226,563
Wisconsin	586,677
Wyoming	47,769
Unspecified	66,488
	16,558,921
Foreign countries	55,079
Total shipped from cement plants	16,614,000

*Includes estimated distribution of shipments from five plants.

The statistics of imports and exports of hydraulic cement in September, 1924, are not available.

Treasury Official Rules on Cement Dumping

ACCORDING to current newspaper reports, Assistant Secretary of the Treasury McKenzie Moss in a notice to appraisers of merchandise at New York, Los Angeles, Portland, Ore., Honolulu and San Juan announces that the Treasury Department has reached the conclusion that the finding of dumping of portland cement is not justified. The appraisers need no longer withhold appraisement reports as directed when the dumping inquiry was commenced several months ago.

Leading cement manufacturers of the country participated in the extensive hearings which took place at the Treasury several weeks ago. The contention was that cement was being imported from Norway, Sweden, Belgium and Denmark at prices below the home market value. The principal ports through which the foreign cement was coming were those on the Pacific coast and in the southeastern section of the country.

Assistant Secretary Moss based his ruling on a recommendation from E. W. Camp, director of customs.

A memorandum submitted by Mr. Camp to Assistant Secretary Moss was as follows:

"Neither the evidence adduced by the domestic manufacturer nor the official reports of the customs investigating officers establish with any certainty or definiteness that as a general practice, and taking into consideration the very great difference in wholesale quantities, cement has been sold to the United States by any of the countries in question at less than the foreign home market value. Moreover, this situation involves a number of doubtful questions of appraisement.

"The evidence of injury submitted by the domestic manufacturers is very general and in no case is any specific loss or injury directly traced to sales to their customers of European cement at less than the foreign home market values.

"The imports during 1923 from the countries accused of dumping were only 1.04% of the total domestic production of the United States. Even admitting the claim of the domestic manufacturers that the seacoast district, where the imported cement is distributed, should be considered as units independently of the interior of the country the official statistics and the trade papers indicate wonderful prosperity of the cement industry in those districts in 1923 and 1924, with imports insignificant as compared with the domestic production and sales."

Rock Products at Indianapolis Industrial Show

THE sand and gravel trade in Indianapolis is enthusiastic over the results obtained and the interest aroused in the Industrial Show which was held at the state fairgrounds from October 11 to October 18. A similar show was held in 1921, but the display this year so far surpassed the other show there was no comparison. During the seven days of the display more than 200,000 persons inspected the exhibits.

The show was held in a new building erected this year by the state, said to be the largest building for display purposes in the Middle West. It is more than 800 ft. long and when arranged for display purposes has about two miles of aisle space. One day during the show more than 65,000 persons attended, the largest crowd attending any function ever held in Indiana.

Officials of the Indianapolis Chamber of Commerce, who sponsored the show, say it was held largely for educational purposes, it being the desire to acquaint the public of the city with just what is made in Indianapolis. With the attendance recorded, it is estimated that more than half the citizens of the city went to the show sometime during the week. Dozens of requests for space were turned down because the products did not happen to be made in the Hoosier capital.

Among the trade's exhibitors were: Atlas Sand and Gravel Co., Granite Sand and Gravel Co., Helm-Lewis Cement Block Co., Indiana Gravel Co., Indianapolis Concrete Products Co., O. L. Miller Co. and Shearer & Mayer.

Columbia Quarry Company's New Crushing Plant

IN a recent issue of ROCK PRODUCTS a local paper was quoted regarding the new crushing plant of the Columbia Quarry Co. at Krause, Ill., in which the proposed plant's capacity was stated as 7000 tons per day. Information since received from the Columbia Quarry Co. is to the effect that the plant will have a capacity of 400 tons per hour.

The letter states that the plans for the new plant are now complete. These were drawn by the Allis-Chalmers Co.'s engineers in connection with the engineering staff of the Columbia Quarry Co. They show that a No. 18, a No. 8 and two 10-in. reduction crushers will be used. The plant will be of steel and no concrete will be used except for foundations.

A large number of plants were visited in seeking ideas for the plant design, and it is thought that this will be one of the best plants of its size in the country.

Sand and Gravel Plants Held Taxable in Maryland

UNDER a ruling of the state tax commission sand and gravel companies operating in Maryland are held to be taxable.

J. Enos Ray, chairman of the commission, in announcing this decision said the question was raised by one of the many companies operating in Maryland in which it was argued that such companies are manufacturers, and as such under the law were entitled to exemption.—*Baltimore American.*

Pumice Stone Discovered in Idaho

THE discovery of a bed of pumice stone and fuller's earth near Twin Falls, Idaho, and near a railroad was made by John Loveless and C. H. Williams, of Twin Falls, last week and steps have been taken toward the organization of a company for its development. The exact location of the deposits are not made public.—*Boise Statesman.*

The President of the World's Greatest Quarry Operating Organization

ONE of our good friends goes to call on G. J. Whelan of the Kelley Island Lime and Transport Co. and, proceeding as usual to the office door marked "Vice-President and General Manager," finds Mr. Whelan's name scratched off and is directed to another door with "President" on it. He is kind enough to tell us about this incident; otherwise we should doubtless have failed still longer to mention an event of great interest to the lime industry and the quarry industry generally.

So modest is the new president of the biggest quarrying and lime manufacturing organization in the world that a request for "copy" for an official announcement elicited the following laconic paragraphs:

"G. J. Whelan, formerly vice-president and general manager of the Kelley Island Lime and Transport Co., Cleveland, Ohio, was elected to the presidency of that company on September 15, 1924.

"Mr. Whelan's service with the Kelley Island institution dates back to 1905 when he was appointed assistant superintendent of the company's Marblehead operation. He was later superintendent of the Marblehead plant, and in 1919 was promoted to vice-president and general manager and transferred to Cleveland."

However, we do not need to dwell upon those virtues of fairness, kindliness, firmness, and loyalty which have endeared him to fellow employes, business associates and employers, because they are evident in the accompanying portrait. Nor need we enlarge upon the industry, fidelity, application, ability, breadth and the capacity for work which have won him a high place in the industry; because, if you will read again the two short paragraphs quoted, you will appreciate that they unconsciously tell that story forcibly and eloquently.

From superintendent of one of the company's many plants to president in five years! Surely that tells a story of American opportunity and American native ability to grow to the opportunity such as we have read about in the story books.

The institution which Mr. Whelan heads is the largest producer of crushed limestone in the world. It operates quarries at Rockport, Mich.; Kelley's Island, Marblehead, Gibsonburg, Marion, Sandusky, Tiffin, and White Rock, Ohio; Dover Plains, N. Y.; Huntington, Ind., and Martinsburg, W. Va. It operates lime plants at all these places and one at Buffalo, as well. It has a big sand and gravel industry with headquarters at Sandusky, Ohio.

The Kelley Island Lime and Transport Co. also operates numerous lake steamers including special unloading boats and sea-going suction sand dredges.

The lime-manufacturing part of the business provides for the production of 6,000,000 bbl. of lime a year, from 170 or more kilns—one can never tell just how many, for more are being constantly added While we have no statistics available we estimate it quarries and uses for lime manufacture; fluxing stone, crushed stone, and agricultural limestone at least 5,000,000 tons a year.

Editorial Comment

A Case of 40c Gravel

Most of the trouble in the world is caused by misunderstandings. They cause family quarrels and they cause world wars. Last, but not least, they cause an enormous amount of grief in business. Let us refer here to a specific case we recently heard discussed. Keep this case in mind the next time you are inclined to jump to the conclusion that *your competitor* is trying to ham-string you. Possibly similar cases occur oftener than you realize.

A contractor ordered two cars of gravel. Through a clerical error two cars were sent from two different plants of the company. Four cars of gravel arrived at the destination. Demurrage began to pile up. The material must be disposed of. The contractor knew he could buy it at his own price, and he did. The price was 40c a ton.

Discussing general business conditions with friend Dealer some time afterward, Mr. Contractor incidentally mentions he bought gravel from ——— at 40c per ton. Mr. Dealer naturally mentions this to other dealers and maybe to another producer or two. Eventually it becomes generally reported in the trade that that blankity blank blank at ——— is selling gravel for 40c a ton, and if he does it we'll have to do it, etc., etc., etc. You can imagine other complications.

Remember all this came about from a half-truth innocently or otherwise repeated. The moral: Don't jump to conclusions and damn your competitor simply because he is a competitor. His interests and your interests are too nearly allied for him to injure both without good and sufficient reason. Better find out if such reason exists, and save yourself foolish acts.

Convention Programs

As the time for the national conventions of various trade and technical societies draws near, more thought is being given to convention programs. Fault has been found with the usual system of "running on the clock," starting each paper at a certain hour and cutting off discussion when the hour for the next paper arrives. The effect is to cut down interesting discussions that everyone would be glad to see go on and to drag out uninteresting discussions to the point of weariness. A system that some technical societies are adopting is to allow one or two half-hour units to a paper with a similar allowance for discussion, without regard to the exact time of starting or stopping. Then if the discussion is so interesting that the convention wishes it to continue the chairman can put the granting of an extra time unit to vote. If it is not interesting and the sense of the meeting is that discussion may be dropped and the next paper taken up, this also may be done. In this way "stalling for time" may be avoided. Of course, in making up the schedule the program makers must leave some margin in the total time for discussions that may run beyond their allotted limits. This method seems feasible, and it will accomplish a lot if it succeeds in eliminating the dull spots which every attendant of conventions remembers.

Scientific Concrete

The Portland Cement Association is doing a real public service in its advocacy of "scientific concrete," a term which is beginning to be used for concrete that has been properly designed and mixed and in which the proper ratio of cement and water has been maintained. It is doing this not only by lectures and articles in engineering magazines but by paid advertisements in papers which reach the executives and managers of large industries. Rock Products is particularly interested to note that in one of these advertisements the high quality of the aggregate employed in making a good concrete was stressed. As has been pointed out in these columns before, all the calculating of fineness modulus and water ratio will not help if the aggregate is dirty or so uneven in quality that one batch cannot be mixed like another. Clean, uniform aggregate is still one very important essential for good concrete.

Aspdin's Cement

Rarely has the centenary of an invention called forth so much comment as the 100th anniversary of the discovery of portland cement. The fame of the bricklayer of Leeds is now secure. It does not detract from that fame to call attention to the fact that Aspdin's cement bears about the same relation to the portland cement of today as Stephenson's Rocket bears to the locomotive that pulls the Twentieth Century Limited. The hundred years have been a period of development. Much of the development, in fact, has been crowded into the last 25 years, when the resources of chemistry and engineering have been so heavily drawn upon to improve both the product and method of manufacturing portland cement. It is gratifying to know that America has played a considerable part in this development. The researches of the investigators of the Bureau of Standards and other chemists and the many inventions introduced for the handling of materials and simplifying processes in American plants have had much to do with placing the cement industry where it is today.

Indiana Sand and Gravel Association Takes New Lease of Life

Annual Meeting at Terre Haute Decides to Employ Executive Secretary and Get Busy

THE Indiana Sand and Gravel Association held its annual meeting at Terre Haute, October 14. The real issue before the meeting was whether or not the association would re-establish itself on the basis it formerly occupied, or "bust up" entirely. Fortunately for the industry in Indiana, and everywhere else for that matter, progressive and forward-looking leaders in the industry won out and there is every probability that the Indiana Association will again soon lead the field, as it did for so many years under the able management of secretaries, E. Guy Sutton and R. C. Yeoman.

Since Mr. Yeoman resigned, about a year ago, to become chief engineer and general manager of the Construction Materials Co., Chicago, the Indiana Association has been more or less drifting. The result has not been satisfactory, and the members have come to realize that a live association is largely the result of the work of a live secretary.

Consequently the association has decided to look for a live secretary who will continue and further develop the splendid promotional work begun by this organization. To bring about this reorganization of the association, E. Guy Sutton, vice-president of the Carmichael Gravel Co., Attica and Wolcottsville, Ind., was elected president for the ensuing year. Mr. Sutton was for a number of years executive secretary of the association, and later of the National Sand and Gravel Association, which was reorganized during the war largely through the efforts of the Indiana Association.

L. R. Witty

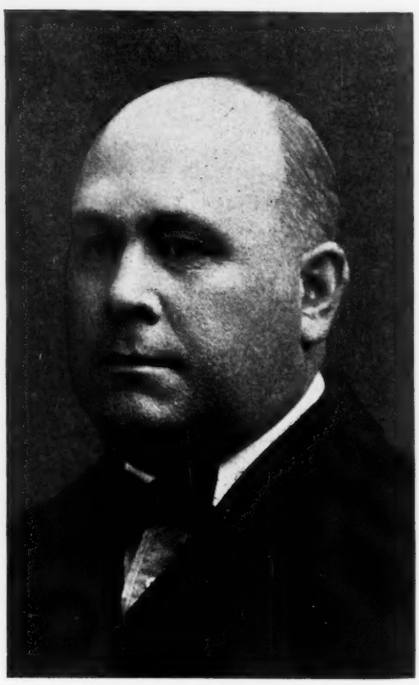
Other Officers and Directors

Lee R. Witty, general manager of the Wabash Sand and Gravel Co., Terre Haute, Ind., was elected vice-president, and Jesse A. Shearer, president and general manager of the Indiana Gravel Co., Indianapolis, Ind., treasurer. The directors elected were: J. P. Coyle, Consumers Co., Chicago, Ill.; F. A. Baker, Baker Gravel Co., Noblesville, Ind.; A. H. Brymer, Standard Sand and Gravel Co., Clinton, Ind.; Abe Hart, Sandborn, Ind., and J. P. Cantlon, Neal Gravel Co., Mattoon, Ill.

E. Guy Sutton

H. C. Huffstetter, president of the Brown-Huffstetter Sand Co., Indianapolis, made an eloquent plea for a reorganization of the association and for trade associations generally, which was irresistible. He sketched briefly the history of the organization—the first in the sand and gravel industry to have an all-time salaried secretary—how it had been the nucleus of the national organization and of the war service committee on mineral aggregates, of the initiation of transportation and freight-rate service, and of other activities in behalf of the industry which made the Indiana Association a model one for the industry as a whole. He stressed the necessary unselfish character of successful co-operative effort. And he succeeded admirably in winning the whole-hearted support of all present.

It is intended to employ as secretary a technically educated man such as Mr. Yeoman and one who is a practical politician as well. It was clearly recognized by all present that to take an active part in shaping public works policy is not only necessary for the survival of the industry but a duty of every intelligent business man in a system of representative government based on a theory of checks and balances, such as our American system of government is.



J. A. Shearer

Manor Gravel Plant of Charles Warner Co. Ready for Operation

THE Manor sand and gravel plant of the Charles Warner Co., located near Bristol, Pa., is ready for operation. The plant constructed at a cost of a half million dollars, was built within the estimate made for its construction and is completed within a few days of the agreed time, both of which details are highly pleasing to the officials of the concern.

The plant will have a capacity of 5000 tons daily and will greatly aid the Warner Co. in meeting big contracts for sand and gravel that are expected in the next few years, due to the big building boom in progress in this section of the country.

Two of the 10 barges being built in this city for the Warner Co., and which will be used in its dredging operations along the Delaware river will be ready to be launched within a few days. These are the first of the barges to be completed. The remainder will be constructed during the winter in time for early use in the spring.

A tug is also being reconstructed in this city into a more powerful motor equipment for river use.—*Wilmington (Del.) Star.*

Enwood Sand and Rock Co. Installs Crusher with Gold Saving Equipment

THE *Tribune* of Roseville, Calif., describes the new plant of the Enwood Sand and Rock Co. which has just been erected on the outskirts of Roseville. An interesting feature of the installation is the inclusion of gold saving equipment.

The construction work included building of a narrow gage railroad about a mile in length over which, with a fleet of six 3-yd. Koppel side-dump steel cars, propelled with a Milwaukee gas motor, the sand and rock is brought on an incline and dumped into a concrete hopper. The material is dug with a gasoline shovel on a caterpillar tread.

From the hopper this material is automatically fed to a 24-in. rubber belt conveyor and carried to the top of the washing and screening plant, a height of 48 ft. Here it falls into the scalping screen, separating the sand and gravel, up to 2 in. in size, from the larger sized rocks. The latter are dropped to the primary 14x18-in. crusher of the jaw type. The product of the jaw crusher is conveyed to the secondary crusher of the gyratory type. The product of the secondary crusher is again elevated to the top of the "works," where it passes through two conical screens from which it drops in respective grades or sizes into large bunkers, each capable of holding several carloads.

There are 11 of these bunkers, each containing a different size of crushed rock or gravel and sand. Each of these bunkers has a gate on one side at the bottom. Through these gates the finished product drops to a 20-in. mixing belt which carries the various grades on an incline to a point where it is either loaded directly on cars dropped into the truck bins for local trade from which trucks are loaded, or it is diverted to the stock pile belt conveyor, 480 ft. in length, from which it drops to the graded stock piles underneath.

From these stock piles the product will be loaded with a clamshell bucket mounted on a self-propelling "Stockton rig" to cars on a side-track paralleling the stock piles.

The plant will have a storage capacity of 1100 carloads and will be operated with two shifts of 15 men each, and possibly three, until the maximum storage capacity is reached.

As the sand and dirt leaves the first screen, with its accompanying water poured on it at that point, it passes through sluice boxes equipped with the regulation Yuba riffles coated with mercury, to which adheres the flour gold hidden in the sands of Miners and Secret ravines, which unite on the company's property. While it is not likely that a large amount of gold will be recovered, it is confidently expected that it will go a considerable way toward paying the operating expenses of the plant.

Harry W. Flint is manager of the plant.

National Sand and Gravel Convention

THE ANNUAL CONVENTION OF THE NATIONAL SAND AND GRAVEL ASSOCIATION will be held at the Auditorium Hotel in Chicago, January 5, 6, and 7, 1925.

This is the week of the Good Roads Show in Chicago and members and visitors will have an unusual opportunity to see machines used in their industry and have them explained by engineers who are in charge of exhibits. The convention will adjourn in the afternoon of each day so that members may do this without missing any of the convention program.

As Chicago hotels will be filled up that week reservations should be MADE EARLY.

Hearing on Gravel Rates Deferred

HEARING of the complaint of the Summitt Sand and Gravel Co. against rates on sand and gravel charged by the Duluth and Iron Range railroad, scheduled before the Minnesota state railroad and warehouse commission at the Chamber of Commerce has been postponed to October 28. The hearing will be held at 10 a. m.

Big Tejunga Rock and Gravel Company Makes Additions to Plant

COMPLETED at a cost of approximately $90,000, the new addition to the plant of the Big Tejunga Rock and Gravel Co., of Los Angeles, is now in operation, according to Lloyd J. Killian, general manager of the concern.

The entire plant has an hourly capacity of 160 cu. yd. of material, 60% of the total output being crushed rock.

The Big Tejunga Rock and Gravel Co., which is a member of the Builders' Exchange of Los Angeles, owns the lease on 90 acres surrounding the plant, but only a portion of the land is being worked at the present time.

The addition to the plant consists of a complete crushing unit, with a well, and new scales and weighing equipment.

A new engine was also installed as part of the improvement program. Guy Burnham is president of the concern.—*Los Angeles Examiner.*

Another Sand and Rock Plant Near Los Angeles

THERE is to be a material increase over the 4500 loads of sand and crushed rock that go from the San Fernando valley daily to Los Angeles by auto truck. The establishing of a new crushing plant on Big Tejunga wash on Clyburne avenue will be responsible for the increase. This plant is to be installed by local men who have just incorporated the Valley Rock and Gravel Co.

The company has acquired by purchase a 40-acre tract of gravel bearing land. The new holding is said to run 25% sand and 75% boulders of the larger sizes. The purpose of the organizers of the new company is to equip a plant with an 8-hr. capacity of 1000 yd. It is expected market for much of the output of the plant will be found nearby, in the construction of the Pacoima and Tejunga flood-control dams.

Machinery of the latest design is to be installed, according to R. M. Jennings, who is president of the new company. S. M. Acosta is vice-president and William Millen secretary. Mr. Jennings will be the manager of the concern.—*Los Angeles Times.*

New Texas Sand and Gravel Operations

PERMITS to take sand and gravel from the Brazos river have been granted by the game, fish, and oyster commissioner to J. R. Garrett of Brookshire at a location between Austin and Waller counties and to Messrs. Lee and Van Orman of Yoakum to operate at Rosenberg in Fort Bend county. Extensive trackage and machinery are to be installed and the output of yardage will run into the millions, according to J. R. Smith, sand, shell, and gravel deputy. —*Dallas News.*

Los Angeles Condemns Arroyo Seco Land to Keep Out Rock Crushers

AIMED to be the deciding blow against rock crushers in the Arroyo Seco, an ordinance was adopted by the city council of Los Angeles for the condemnation of approximately 100 acres, including all bottom lands in the arroyo from Avenue 35 to Avenue 57. The land would be acquired for park, playground, boulevard and flood control purposes.

The action of the council was declared to be one which would strengthen the case of the city in the superior court, which seeks an order prohibiting the operation of rock crushers within the boundaries of the district described.

The council will give ample opportunity to protestants of the new park and playground plan, it was announced, and may at a later date add to or eliminate.—*Los Angeles Herald.*

Find Local Agricultural Limestone Crushers Do Not Pay

BECAUSE of the greatly increased demand for agricultural limestone for liming the soil over the greater part of Iowa, many farmers have investigated the advisability of using local deposits of limestone rock. The tendency generally has been to underestimate the cost.

J. H. Schuster, of Bernard, bought a portable crusher last spring and agreed to furnish pulverized limestone at $1.50 per ton. At the end of the season, having crushed 600 tons, after subtracting all costs, he had $7.59 left for profit, interest and depreciation on his crusher.

If ground limestone of good quality and fineness can be delivered at a shipping point for $1.75 to $2 per ton the farmers' only advantage in local production is in a saving on wagon hauls, advises H. W. Warner, soils expert, Iowa State College. An average cost of $2.25 for local production seems to be likely, he says. Under very favorable conditions it may be possible to produce it locally for less.—*Esterville (Iowa) Enterprise.*

Florida Limestone Production

AN increase of 809% during the last 11 years is shown in the value of output of Florida limestone, for all purposes, such as road-making, railroad ballast, riprap, concrete, building and agricultural purposes.

Discovery of this remarkable rate of increase in this important branch of Florida's products has just been made by Herman Gunter, state geologist, in a study of the mineral industries of the state. The total value of the output of these industries in 1913 was $156,589, while in contrast to these figures are those for 1923 production, which showed a total value of $1,425,434.

The great increase is accounted for, according to Mr. Gunter, by the large road-building program and the rapid progress that the state is making in highway construction. The limestone and shell marls are extensively utilized as road-making materials, as well as in building.

In addition to the production of limestone for the various uses mentioned in the foregoing, large quantities enter into the manufacture of quick and hydrated lime. The lime industry has centered about Ocala since 1884. In that part of the state excellent deposits of high-grade limestones, analyzing as high as 99.15% calcium carbonate, are found. The lime manufactured in Florida enters largely into the construction work within the state, but little of it being shipped without the state's borders. On account of its purity, however, some is used in the chemical industries, and is shipped to points in other states. The hydrated lime is not only used for inside finishing work but there is an increasing demand for it, it is stated by Mr. Gunter, from the agriculturist for use on soils.—*St. Petersburg (Fla.) Times.*

Make Your Hotel Reservations Early

THE NATIONAL CRUSHED STONE ASSOCIATION will hold its next annual convention at the Hotel Gibson, Cincinnati, Ohio, January 12, 13, 14, 15, 1925.

Unusually good provision has been made for meeting room and exhibition space.

Plans are being made for the biggest and best convention in the history of the quarry industry.

Wise quarry operators will make their plans to attend now.

A. P. Sandles, Secretary, National Crushed Stone Ass'n, 405 Hartman Building, Columbus, Ohio, will see that you are taken care of.

West Coast Quarry Company to Build Plant

THE Green Epidosite Co. has purchased three acres between the Pacific Electric and Santa Fe tracks at Inglewood, Calif., for the site of its plant, construction of which will begin immediately.

The Green Epidosite Co. is a $250,000 corporation and the owner of extensive quarries at a point about 10 miles north of Victorville.—*Los Angeles Examiner.*

Arkansas Stone Plants Consolidate

TWO of the largest crushed stone plants in Arkansas, the Dickinson plant at Big Rock and the Cornish plant across the river, have been consolidated as the Big Rock Stone Co., with a capital stock of $200,000 all paid up.—*Rogers (Ark.) Post.*

Engineer Says Dust from Crushing Plant Interfered with View of Crossing

DR. CHARLES D. GRANEY conducted his formal inquest into the accident at the plant of the Le Roy Lime and Crushed Stone Corp., at Le Roy, N. Y., when an Erie freight train struck a truck owned by the Lapp Insulator Co., killing Gordon John Pestle and William Allen, and injuring Edwin Lathan.

Practically all of the witnesses agreed that the train did not strike the truck but that the machine was driven into the locomotive, the driver wheels of which wrecked it. Engineer Hannefin testified that he did not see the truck as the train approached the crossing and knew nothing until he heard the crash. No whistle was blown as no warning signal was required at the crossing. The engineer also stated that dust from the stone crushing plant would have a tendency at the time to obstruct a clear view of the plant crossing. Other members of the train crew substantiated the principal facts brought out by Mr. Hannefin.—*Rochester Times Union.*

Death of Charles E. Smith

CHARLES E. SMITH, president of the Bone Dry Lime Corp., of Fredonia, N. Y., died at his home in Fredonia September 28. His death was the result of a motor accident.

Mr. Smith was born at Gault, Ont., 66 years ago and spent the larger part of his business life in Franklin, Pa., where he was interested in oil production and engaged in the insurance business. He formed the Bone Dry Lime Corp., of which he was president, building a plant at Cassadaga. Six years ago he moved to Fredonia, where he had since resided. During his residence he had taken an active interest in civic affairs.

He was a member of the Methodist Church and a Mason. His wife and two sons survive him.

Kansas City Sand Producers to Make Artificial Marble

A CORPORATION to manufacture artificial marble is being organized by Kansas City business men. Details of the corporation will not be made public until the organization is completed.

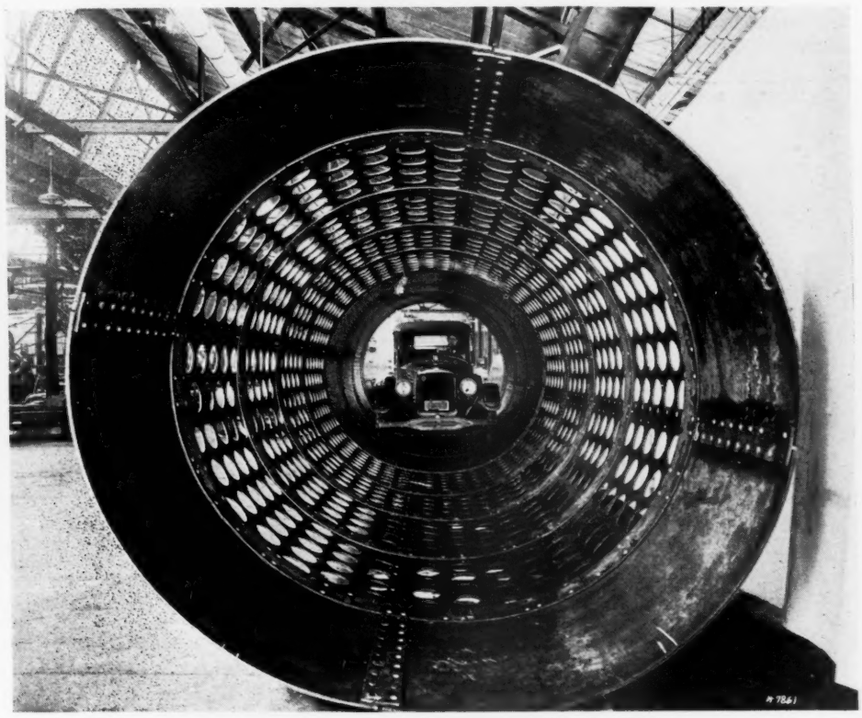
It is understood Charles W. Bartlett, president of the Raw River Sand Co., will be president of the new corporation, and Frank W. Peck, president and treasurer of the Muncie Sand Co., will be treasurer. Robert M. Brockett, vice-president of the C. A. Brockett Cement Co., and Charles Barton, 303 Elmhurst building, are among the organizers, but their official capacities have not been announced.

A name for the corporation has not been agreed on.—*Kansas City Journal.*

The Largest Stone Screen

AS evidence of the size to which crushed stone plants and plant units are growing the picture accompanying this is offered. It shows a screen made for a large crushed stone plant in Michigan, big enough so that a full sized auto (and not a flivver) can be driven through it.

The actual dimensions of the screen are 37 ft. 10 in. in length and 9 ft. in diameter. The screen is punched from ½-in. steel plate and the sections are fastened to ½-in. straps which are riveted to one section and bolted to the next. The screen was assembled complete at the factory, when the photograph was taken, and then knocked down for shipment. The frame, which was not assembled with the screen for the picture, is of heavy angle iron.



The largest stone screen yet made, through which a full sized auto was driven. It was set up without the frame and hence is slightly distorted by its own weight

This screen is one of four and each screen is designed to have a capacity of 2000 tons per hour. The stone is washed in the screens as well as sized. The discharge of the screens is taken by a system of belt conveyors to storage piles.

The plates of which this screen is made up were made by the Harrington and King Perforating Co.

Quarry Quartz for Flux in British Columbia

A NEW quartz quarry has been opened near Anyox, B. C. Jim Ferguson and associates who have a contract with the Granby Co., are working the property owned by Chas. Clay at the north end of Larcom Island. They are taking out about 40 tons per day, which is used in the Anyox copper smelter for fluxing purposes. The quartz does not carry any values.—*Alice Arm (B. C.) Herald.*

Missouri and Kansas Quarry Men Form Association

FOR the purpose of better co-operation in road building programs in Missouri and Kansas the Associated Rock Producers of Missouri and Kansas was formed at the Elks' club, in St. Joseph, Mo., recently.

T. J. Porter of Plattsburg, Mo., was elected president; W. D. Moore of Blackwater, Mo., vice-president, and Charles L. Dundey of Kansas City, secretary and treasurer.

The next meeting will be held at Kansas City. Quarrymen from St. Joseph, Kansas City, Joplin, Amazonia, Blackwater, Plattsburg, Kansas City, Kans., and Savannah, Mo., attended the meeting at St. Joseph which was called to order by Henry Hess, president of the Hesse-Rix Building Material Co.

The quarrymen believe that through this association they can best co-operate with the states in carrying on the enlarged road program which would result from the adoption of proposition No. 5, in this state, and the Kansas gasoline tax.

Through co-operation with the state department in producing material in large quantities whatever the demand may be, it is believed Missouri's road building program can go forward without serious interruption. Heretofore, the inability to get material on the ground in sufficient quantities has materially slowed down road construction work, according to those who attended the meeting here. They cited as an instance the delays in building the Buchanan county memorial highway, which was delayed from time to time for this reason.

There is no intention on the part of such an organization, its members say, to boost prices on crushed rock, and declared that the price of this material has not increased since the road building program in Missouri was started. The purpose is simply to co-operate in furnishing crushed rock in large quantities, and distributing it to the best advantage to the state highway department.

In the event that proposal No. 5 is carried in this state it will mean a great demand for road building material: In this event, such an organization can best meet the supply, it is said. One of the objects of this organization is to help carry proposition No. 5 at the election.

K. D. Hequembourg, former executive secretary of the Builders exchange here, conceived the idea of an association of rock producers and brought the men together for the first meeting here.—*Kansas City Journal.*

Rock Products Production in California

ACCORDING to the report of Lloyd L. Root, state mineralogist of California, the 1923 production of various rock products was as follows:

Substance	Amount	Value
Asbestos	20 tons	$ 200
Barytes	2,925 tons	16,058
Bituminous rock	2,945 tons	11,780
Cement	10,825,405 bbl.	25,999,203
Dolomite	69,519 tons	142,615
Feldspar	11,100 tons	81,800
Fuller's earth	3,650 tons	55,125
Gypsum	86,410 tons	289,136
Lime	70,894 tons	788,834
Limestone	143,266 tons	348,464
Magnesite	73,963 tons	946,643
Mineral paint	1,049 tons	11,773
Pumice and volcanic ash	2,936 tons	16,309
Silica (sand and quartz)	7,964 tons	30,420
Soapstone and talc	17,439 tons	252,661
Stone, miscellaneous*		15,395,652

*Includes macadam, ballast, rubble, riprap, paving blocks, sand, gravel and grinding-mill pebbles.

Truck Operating Costs

TRUCK Operating Costs is Bulletin No. 10 of the engineering experiment station of Perdue University, Lafayette, Ind. It is a thorough analysis of the factors that affect the cost of operating trucks and a great many examples are given of typical costs. These are figured in costs per mile and per 100 lb. A number of curves showing different relations, such as the relation between the size of truck and the gasoline consumption, are included

Samuel M. Shallcross, General Manager American Lime and Stone Company

SAUMEL M. SHALLCROSS has been appointed general manager of the American Lime and Stone Co., Bellefonte, Penn. Mr. Shallcross has been acting general manager and the manner in which he handled this position convinced the board of directors that he was the logical successor to W. R. Phillips, who recently resigned. They have therefore expressed their confidence in him by appointing him to this position. At the same meeting of the board Mr. Shallcross was made vice-president and a member of the board of directors of the company.

Mr. Shallcross is a graduate of the University of Delaware and also graduated from the engineering school of the Westinghouse Electric and Manufacturing Co., later working with that company as a designing engineer. He has also had considerable experience as an industrial engineer, engaged in installing cost systems and reorganizing plant operations, layouts, etc.

Upon being made general manager, Mr. Shallcross resigned as treasurer of the company, and the board appointed George C. Bingaman to fill this position. Mr. Bingaman has been acting as purchasing agent of the company, and it is expected he will continue these duties in addition to those of treasurer. Mr. Bingaman was transferred to the American company about two years ago when the Charles Warner Co. assumed management control. He was formerly employed as chief clerk at the Cedar Hollow plant of the Warner company.

An Appreciation of W. R. Phillips

Referring of W. R. Phillips, who resigned as general manager to become vice-president and general manager of the New England Portland Cement and Lime Co., his former business associates say: "It was with deep regret that we learned of the resignation of William R. Phillips as general manager. During the year Mr. Phillips was connected with the company he made many friends, and his leaving will cause a deep sense of personal loss among his fellow-workers and friends in the American company. Mr. Phillips is becoming associated with a new enterprise which he feels offers a larger field for his activities than did the American Lime and Stone Co.

"During the past two months he was with the American company he has been quite ill, but we are glad to learn that he is now almost completely recovered."

Investment Bankers Believe Cost Peak Has Been Passed

THE investment bankers of the United States meeting in Cleveland recently were agreed that the peak in building costs, real estate values and rentals has passed. These men believe that from this time on building costs will take a downward trend. A report on existing conditions submitted to the convention contains the following interesting statements: "The biggest item in the cost of building is labor. We are told by some economists that we are facing for the next decade a steady decline in the cost of labor and in the cost of living as well. We also are advised that a continuance of normal building activity is of vital importance to the maintenance of our national prosperity. Caution is, nevertheless, necessary, because if wages and living costs do greatly decline, the erection of new structures based on rentals that are above the willing and comfortable ability of tenants to pay, or which do not afford the maximum degree of such comforts as are commensurate with the rentals, is bound to lead to vacancies, and vacancies to distress for bondholders and owners."

Samuel M. Shallcross

New Wall Board Plant of Beaver Products Co.

THE American Cement Plaster division of the Beaver Products Co. has just completed a new wall board plant at Ft. Dodge, Iowa.

There are several new features incorporated in the design of this plant. Perhaps the most important is the novel and compact arrangement of the belt and dryer by which the required length of the plant is greatly reduced from that of the ordinary design.

The plant was erected at a cost of $300,000, and will produce 200,000 ft. of wall board per day. All construction is fireproof. A full description of this plant is to appear in an early issue of ROCK PRODUCTS.

Well Known Quarryman in New Location

J. I. BAINEY, who was superintendent for the Casparis Stone Co. of Columbus, Ohio, for a number of years and also with other large quarry operations throughout the country, is now with the Sandusky Cement Co., and has charge of its quarry at Dixon, Ill. Mr. Bainey has had a wealth of experience and is very well known among a vast acquaintance in the quarry industry of the country. Recently Mr. Bainey very successfully executed a large bank shot, laying out a sufficient supply of stone for a season's run.

Eliminating Spontaneous Combustion in Coal Piles

By W. F. SCHAPHORST, M. E.

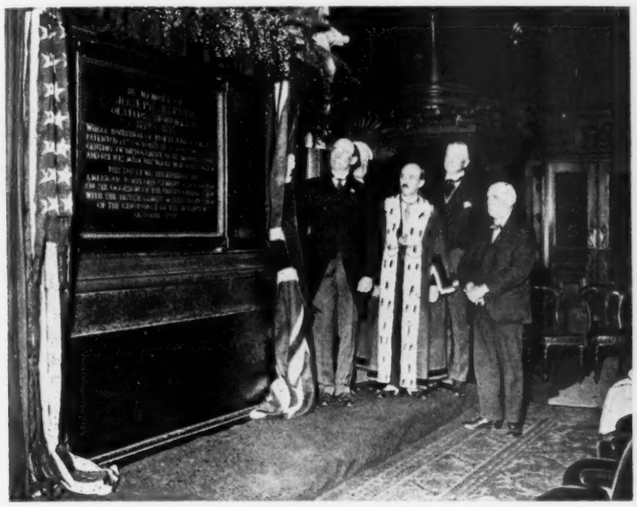
A METHOD that is said to give good results in preventing spontaneous combustion is to dump the coal in such a way that it will not roll. This is, do not dump it from one point as from a crane onto a conical pile. By dumping from one point the large lumps invariably roll down one side and the fine coal is separated from the coarse. It is better to dump it in such a way that this separation does not take place. It may be more expensive to dump coal carefully but it has been found to be well worth while. By avoiding the separation of large from small particles all of the spaces are filled up so that air does not filter into the coal bed. It is the infiltration of the air between the large lumps that is usually the cause of spontaneous combustion. Because of this fact fires usually start near the "edge" of the pile amongst the large lumps and not inside where the air is excluded. The storage of bituminous coal by the railways and other large users has grown tremendously in the last two or three years. It should become standard practice.

Unveiling of a Tablet to the First Maker of Portland Cement

AT the recent meeting of portland cement manufacturers in Leeds, England, to commemorate the 100th anniversary of the discovery of portland cement a tablet was unveiled to Joseph Aspdin, who is known to all the world today as its discoverer. The speech of Frederick W. Kelley, president of the American Portland Cement Association, who is shown in the picture drawing the flags from the memorial tablet, was given in brief form in a recent issue of this paper.

The tablet was unveiled at the town hall at Leeds and the persons shown in the picture of the unveiling are, reading from left to right: Frederick W. Kelley, president Portland Cement Association; Sir Robert Fox, town clerk of Leeds; Sir Edwin Airey, lord mayor of Leeds; P. M. Stewart, chairman British Cement Makers Federation; F. T. Halford, vice-chairman British Cement Makers Federation.

The other picture shows the great grandson of Joseph Aspdin, who is exhibiting the original grant of a patent for the process of making portland cement to representatives of the American Portland Cement Association and British Cement Makers Federation. The picture was taken on the steps of the Leeds town hall.



Left—Unveiling of the tablet. Right—Cement makers and Aspdin's great-grandson with original patent

Mysterious Manhole Explosion at Cement Plant

A PECULIAR and mysterious explosion at the Dexter Portland Cement Co. plant, Nazareth, Penn., resulted in the destruction of a manhole connected with the power system, which required several days' time to repair and caused a partial shutdown of the plant.

The trouble occurred in what is known as the "purchase power line," which brings in power to the plant from the Pennsylvania Edison lines. A cable running from the substation of the Dexter plant to the power plant of the company, and which carried 660 volts, grounded in some manner and flame followed the cable from a manhole near the power plant 30 yards to another manhole midway between the power plant and the substation.

Gas which had evidently collected in some unknown manner in the second manhole became ignited from the flame, and an explosion occurred. The covering of the manhole was blown off and the interior of the manhole, which was constructed of cement, was wrecked. No one was near the manhole at the time of the explosion. A vent hole in the manhole leads to a sewer nearby, but as only waste water runs in the sewer, officials at the plant were unable to account for the gathering of the gas in the manhole. —*Easton (Penn.) Express.*

Cement Industry in India

THE Department of Commerce current bulletin on business conditions abroad says that owing to the lack of construction and the keen competition from stock liquidation, the cement industry in India is stagnant and some mills are closing down. The tariff board is still considering measures for protecting the industry, but it is unlikely that action will be taken since the bills are being opposed by the chambers of commerce throughout the country.

Silica Refractories

TECHNOLOGIC paper No. 116 of the Bureau of Standards deals with silica refractories, especially silica brick. The greater part of the book is devoted to the results of tests on the finished brick and an analysis of these results. The methods of testing are explained in detail. The author is Donald W. Ross, assistant ceramic chemist of the bureau.

Highway Research

RESPONDING to the slogan, "The practical application of highway research," sounded by Director Charles M. Upham of the advisory board on highway research of the National Research Council, 40 state highway commissions have already named representatives on this board. Through the state representation, the highway commissions and the advisory board will have a medium whereby research problems may be studied. The problems will be brought to the attention of the various states and others engaged in highway research, and the solutions will be made known to the state highway commissions through their representatives.

Announcement is made that the annual meeting of the advisory board will be held at the new National Research Council building, Washington, D. C., on December 4 and 5, when the various committees will report and a program, to be announced later, will be presented. It is expected that there will be present at this meeting a representative from each state highway commission, as well as representatives of the member organizations of the board and others interested in its work.

Kansas Cement Rate Hearing

ANOTHER of the numerous cement rate cases was heard jointly recently by the Kansas Public Utilities Commission and the Interstate Commerce Commission. The Kansas commission was represented by Commissioners Greenleaf and Hackney, while Examiner Mooney heard the case for the Interstate Commerce Commission.

In this case the Gas Belt cement plants are objecting to the rates now affecting the plants at Bonner Springs and Sugar Creek, Mo., alleging a discrimination results from the manner in which the rate now works with regard to Kansas City shipments.—*Topeka Capital.*

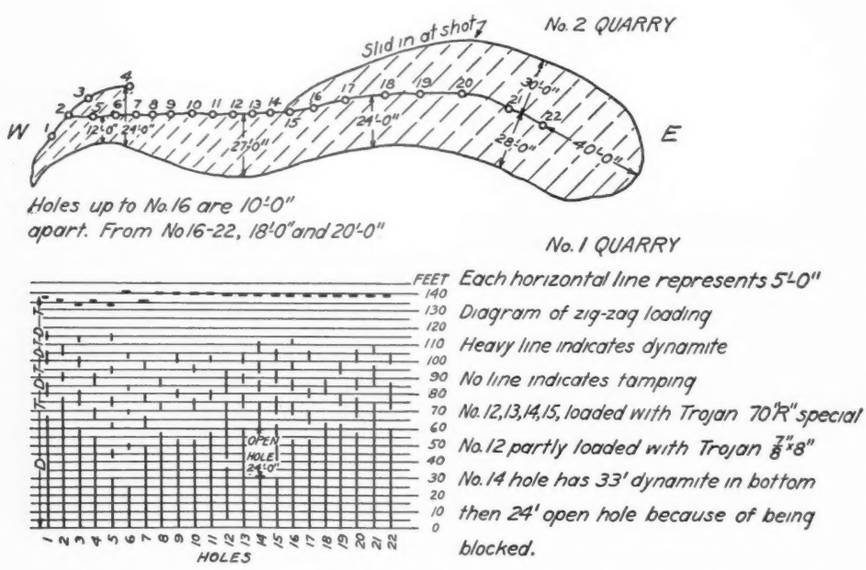
Big Shot with "Zig-Zag" Loading

Weston & Brooker Company Fires What Is Claimed to Be the Largest Shot in a Southern Granite Quarry

By H. O. Lindler
Foreman, Weston & Brooker Co.

THE largest shot which has been fired in a granite quarry of the South was put off at the quarries of the Weston & Brooker Co. of Columbia, S. C., on September 10. This company operates two quarries for one crushing plant and they are located at Cayce, three miles from Columbia. The shot brought the two quarries into one.

There were 22 well drill holes 6 in. in diameter and ranging in depth from 135 to 142 ft., and they extended east and west through the point which has been separating the quarries. The shot split this point and gave both quarries some stone but the No. 1 quarry the major portion. The holes were about 25 ft. from the face of the wall and about 15 ft. apart.



Plan and elevation of the shot, not to the same scale. The position of a hole and its loading may be identified on both by its number

The shot was loaded with Du Pont's 60% gelatine (with the exception of four holes, which were loaded with Trojan special R-70 for an experimental test) and by the "zig-zag" method. First the holes were numbered consecutively from west to east, and according to the burden on the toe the quantity of dynamite that was judged necessary was put in the bottom of the hole; after this about 10 ft. of tamping was put in and 10 ft. more of dynamite and 10 ft. more of tamping, with more dynamite and tamping to the top. With hole No. 2 the same method was used but with care that the tamping was opposite where the dynamite was and dynamite opposite where the tamping was in the preceding hole except for the bottom load. By experiment at these quarries it has been found that this method breaks the stone smaller than a continuous load would break it.

"Cordo" and battery were used for setting off the shot.

The dynamite consumed in these holes ranged from 600 lb. to 1400 lb., according to the burden, 24,500 lb. being consumed in the entire shot. It was loaded and set off in one day and the work was supervised by the Du Pont Co.'s representative, Fred T. Luschar.

As the major portion of this ledge and point was badly shaken up from previous shots, a portion of the stone (approximately 115,000 tons) came out in large pieces, which will be "blockholed" with Ingersoll-Rand Jackhamer drills.

The Weston & Brooker Co. operates a day and a night shift, 10 and 11 hr. respectively. The night shift consists of only drillers and a repair crew for the crushers. This prepares for the operation, while the day crew loads the rock and operates the crushing plant, which produces 800 to 1000 tons of commercial crushed stone daily.

The stone is hoisted from the quarry pits (which are 140 and 212 ft. deep respectively) by Lambert electrical hoisting engines stationed on traveling towers with a main cable of 2½ in. in diameter and 670 and 844 ft. in length respectively across the pits, with other proper devices attached. Pans which hold five tons of stone are hoisted from the pits and carried to the crushers by travelers which run on these cables.

The first of the plant crushers is a Kennedy gyratory No. 27. It takes stone up to 27 in. and crushes it to 4 in. From this it is hoisted by a Weston's link belt to a Weston's crusher No. 2, where it is crushed to 2½ in. From this crusher it passes over a gravity screen and falls to a No. 8 Kennedy crusher, where it is crushed to 1½ in. From this it is carried by a belt elevator to an Austin screen, where it is sized, and the larger stone is returned by gravity to a Kennedy No. 5 crusher, where it is crushed to ¾ in. From the No. 5 it is carried back by the same elevator belt to the screens and sized and dropped by gravity into the bins. The storage bins are of about 500 tons capacity.

The screenings, which were once a detriment and a very expensive residue to dispose of, are now washed through a Weston's washing machine, separating the 5/16-in. stone from the sand and clay, washing it into a bin and sending the residue to the swamps a quarter of a mile away. A detailed description of the quarry and plant was published in Rock Products July 28, 1923.

Pacific Coast Gravel Co. Builds New Wharf

WORK is to start almost immediately upon the construction of a 500-ft. extension to the wharf of the Angeles Gravel and Supply Co., of Port Angeles, Wash.

With the addition of the 500-ft. extension the Angeles Gravel and Supply Co. will have a wharf 750 ft. long from Railroad avenue between Lincoln and Laurel streets to deep water. The wharf will have a 75-ft. face and the depth of water at the face will be 23 ft. at extreme low water and it will permit the landing of ocean going steamers at all stages of the tide. There will be a landing space of 400 ft. for steamers when they are lying lengthwise to the wharf.—*Port Angeles News.*

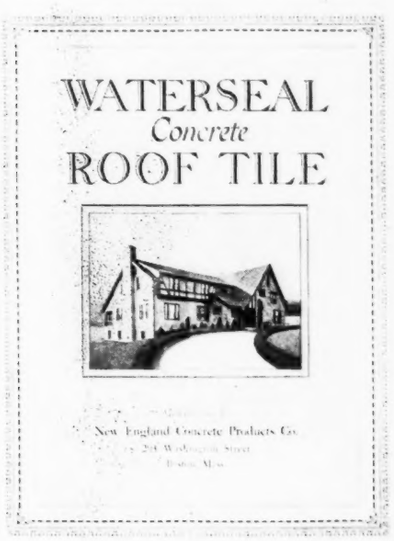
Cement Products

TRADE MARK APPLIED FOR WITH U.S. PATENT OFFICE

Abandons Gravel Business for Cement Products

AN interesting sidelight on the progress recently made in the cement products industry is the practical abandonment of the sand and gravel business at West Peabody, Mass., by the New England Sand and Gravel Co. to concentrate the energies of the organization on the production and sale of cement products under the corporate name of the New England Concrete Products Co. The last few months operation of its modern sand and gravel plant before its dismantling was devoted to accumulating a stock pile upon the cement products plant will operate for some time to come.

William J. L. Roop, general manager, has experimented thoroughly with cement products manufacture. He has built houses of concrete block, brick with cement roofing tile and has found by experience that such houses have sales value above and beyond the ordinary type. He



Booklet recently issued by New England Concrete Products Co., Boston, Mass.

has great faith in the future of the industry and was kind enough to tell the editor if ROCK PRODUCTS would do for the cement products industry what it has done for the sand and gravel industry it would help him and other cement products producers to give the industry the prestige it has come to deserve.

An Announcement

ROCK PRODUCTS has published numerous articles on the cement products industry. The editors have been led to believe these articles have been helpful both in extending the use and consumption of portland cement and in suggesting new opportunities for quarry and sand plant operators to dispose of their otherwise waste products.

Seven years ago when the present editorial management took hold of Rock Products the cement products industry was largely a back-yard industry. Its remarkable growth during those seven years has been followed with great interest. It has paralleled and equaled the remarkable growth and development of the sand and gravel and crushed stone industries.

The cement products industry is no longer in the back-yard class. It has not been for some time past. And during that time our Rock Products organization has been preparing to serve this closely allied Cement Products field with the same kind of service we have endeavored to render the rock products industry.

This page is the beginning of a special department in every issue of Rock Products devoted exclusively to the Cement Products industry. We already have in hand, awaiting publication, articles of much interest and value to all producers of cement products and to all producers of aggregates who contemplate entering this field of production.

In the near future we expect to expand this department into a separate periodical, of the same general character, and with the same editorial and business principles, as Rock Products, and the publishers invite suggestions, criticisms, and comments which can be turned to account in this new service to a growing industry of tremendous potential strength.

Cement Products Prestige

WHAT greater evidence of the progress and prestige of the cement products industry than the illustration herewith? Is it any wonder that one seldom meets a sand, gravel, crushed stone or slag pro-

Front cover ad for cement products in leading iron and steel trade journal

ducer who is not already interested in cement products manufacture, or at least is trying to get a line on its possibilities?

Big Eastern Lumber Dealer Goes in for Cement Products

THE J. A. Mahlstedt Lumber and Coal Co., New Rochelle, N. Y., is one of the biggest retail lumber and building supply organizations in the Westchester suburbs of New York City. It has recently engaged in distributing concrete blocks, manufactured in its own plants.

This end of the business is handled by the Natstone Manhattan Corp., of which J. Albert Mahlstedt, president of the parent company, also is president.

The concrete block plant is at Neptune Dock, New Rochelle. The daily capacity of the plant exceeds 2000 blocks. A concrete brick plant is located in the Bronx. Its capacity is 40,000 brick per day.

Traffic and Transportation

By EDWIN BROOKER, Consulting Transportation and Traffic Expert,
Munsey Building, Washington, D. C.

Proposed Changes in Rates

THE following are the latest proposed changes in freight rates up to the week beginning September 29:

Central Freight Association Docket

9231. Lime, common, hydrated, quick or slaked. Bedford, Becks, Mitchell, Murdock and Salem, Ind., to St. Paul and Duluth, Minn. Present, 27 cents to St. Paul, and 30½ cents to Duluth; proposed, 18½ cents and 21½ cents, respectively.

9234. Crushed stone. White Sulphur, Ohio, to Brecksville, Ohio. Present, 18 cents; proposed, $1.10 per net ton.

9232. Crushed stone. Middlepoint, Ohio, to Plymouth, Ind. Present, $1.20 per net ton; proposed, $1.10 per net ton.

9236. Sand and gravel. Massillon, Ohio, to Oberlin, Ohio. Present, 13½ cents; proposed, 90 cents per net ton.

9237. Slag. Muskegon, Mich., to Chicago, Ill. Present, 21½ cents; proposed, $1.89 per net ton.

9241. Sand and gravel. Winona Lake, Ind., to (a) Wabash, Ind., (b) Michigan division of C. C. C. & St. L. Ry. Present, (a) 11½ cents, (b) 6th class; proposed, (a) 97 cents per net ton, (b) 6th class.

To	Rate
Benton Harbor, Mich.	$1.13
Sodus, Mich.	1.13
Hartman, Mich.	1.12
Eau Claire, Mich.	1.12
Berrien Centre, Mich.	1.12
Hayes Siding, Mich.	1.12
Fairland, Mich.	1.07
Niles, Mich.	1.00
Beebe Siding, Mich.	1.00
Granger, Ind.	1.00
Belleview, Ind.	.97
Elkhart, Ind.	.93
Goshen, Ind.	.87
New Paris, Ind.	.82
Milford Junction, Ind.	.81
Deeter, Ind.	.81
Leesburg, Ind.	.72
Reeds, Ind.	.81
Claypool, Ind.	.81
Silver Lake, Ind.	.81
North Manchester, Ind.	.82
Rushville, Ind.	1.25
Bolivar, Ind.	.93
Urbana, Ind.	.93
Speicher, Ind.	.93
Wabash, Ind.	.97
Treaty, Ind.	.97
La Fontaine, Ind.	1.00
Foxes, Ind.	1.00
Marion, Ind.	1.00
Jonesboro, Ind.	1.07
Fairmount, Ind.	1.12
Summitville, Ind.	1.12
Alexandria, Ind.	1.13
Linwood, Ind.	1.17
Anderson, Ind.	1.22
Alliance, Ind.	1.25
Emporia, Ind.	1.25
Markleville, Ind.	1.25
Shirley, Ind.	1.25
Knightstown, Ind.	1.25
Carthage, Ind.	1.25
Farmers, Ind.	1.25
Reinheimers Switch, Ind.	1.25
Henderson, Ind.	1.25

9249. Sand and gravel. South Dayton, Ohio, to Bedford, Ind. Present, 19½ cents; proposed, $1.84 per net ton.

9252. Gravel and sand (other than blast, engine, foundry, molding, or silica), Leeland, Ind., to Wabash, Ind. Present, 13½ cents; proposed, 92 cents per net ton.

9253. Sand and gravel. Gallipolis, Kanauga, Middleport and Pomeroy, Ohio, to Corning, Glouster and Jacksonville, Ohio (in cents per net ton).

To Jacksonville, Ohio	Present	Proposed
From Middleport	90	80
From Pomeroy	90	80
From Kanauga	90	80
From Gallipolis	100	80
From Kanauga	90	80
From Gallipolis	100	80
To Glouster, Ohio		
From Middleport	90	80
From Pomeroy	90	80
To Corning, Ohio		
From Middleport	90	80
From Pomeroy	90	80
From Kanauga	100	80
From Gallipolis	100	80

9256. Lime. Luckey, Ohio, to Coldwater, Mich. Present, 16½ cents; proposed, 14 cents.

9257. Cement. Gulf Junction, Mo., to Henderson, Ky., and Evansville, Ind. Proposed, 14½ cents to Henderson and 12½ cents to Evansville.

9274. Sand and gravel. Merom and Riverton, Ind., to Salem, Ill. Present, $1.39 per net ton; proposed, $1.13 per net ton.

Western Trunk Line Docket

4141. Sand. Carloads, from Eau Claire, Wis., to Dubuque and Bettendorf, Iowa. Present, 12 cents per 100 lb.; proposed, 10 cents per 100 lb. to Bettendorf; 9½ cents per 100 lb. to Dubuque, Iowa. Minimum weight, 90% of marked capacity of car except when weight of shipment loaded to full visible capacity of car is less than 90% of marked capacity of car, actual weight will apply but in no case shall the minimum weight be less than 40,000 lb. (By shipper.)

3395-B. (Sup. 1.) Lime. Carloads, from Mitchell, Ind., to Nekoosa, Wis. Present, 21½ cents per 100 lb.; proposed, 19 cents per 100 lb.

Southwestern Freight Bureau Docket

2269. Cement. To establish on cement, carloads, minimum weight 50,000 lb., from Houston, Texas, to interstate destinations shown in Items 1250, 1276, 1280, 1320 and 1330, S.W.L. Frf. 90E, same rates as are now published from Manchester, Texas. In the items referred to above the rates on cement, carloads, are published specifically from Manchester, Texas. Manchester was recently placed within the switching limits of Houston and bills of lading issued on future business will be taken out at Houston instead of Manchester. The proposed change is therefore desired so that there will be no dispute as to proper rate applicable when bills of lading are issued at Houston.

2377. Crushed stone and ground limestone. To establish rate of 3½ cents per 100 lb. on crushed stone and ground limestone, from Carthage, Joplin and Webb City and Cartersville, Mo., to Pittsburg, Kan. The Interstate Commerce Commission prescribed a rate of 3½ cents per 100 lb. on chat, carloads, from Webb City and Cartersville, Mo., and points in that vicinity to Pittsburg, Kan., and as crushed stone is used for the same purposes shippers contend same rate should be established on that commodity.

Southern Freight Association Docket

16035 (shippers). Lime, building, chemical and hydrated. Carloads, minimum weight 24,000 lb. from Linville, Riverton, Strasburg, Strasburg Junction and Toms Brook, Va., to West Point, Va. Present rate $5 per net ton; proposed, $2.27 per net ton, same as rate now in effect on building lime, carloads.

16073. Slag. Carloads, from Ensley, Boyles and Woodward, Ala., to stations on the Nashville and Decatur and Lewisburg Divisions of the L. & N. R. R. Class "A" rates now apply. It is proposed to establish commodity rates in line with rates from and to other points on the L. & N. R. R. Statement of proposed rates will be furnished interested parties upon request.

16074. Sand and gravel. Carloads, minimum weight, 40,000 lb., from Montgomery, Ala., to Dolcito Junction, Ala. The present intrastate rate on gravel, carloads, is $1.30 per net ton, while the rate on sand is $17.50 per car of 30,000 lb., excess in proportion. It is proposed to establish intrastate rate of 79 cents per net ton on both sand and gravel, carloads, from Montgomery to Dolcito Junction, Ala., same as in effect to Birmingham, Ala., group.

16082. Slag. Carloads, from Anniston and Alabama City, Ala., to Waynesboro, Ga. Present, from Anniston, $2.37; from Alabama City, $2.69 per net ton; proposed, from both points, $1.89 per net ton, same as rate from Birmingham, Ala.

16097. Sand and gravel. Carloads, from Owensboro, Ky., to Bremen, Lynn City, Millport and Anton, Ky. Present, to Anton, 9 cents; to other points, 8 cents per 100 lb.; proposed, 4½ cents per 100 lb., made in line with rates from and to other points on the L. & N. R. R. for similar distances.

16100. Sand. Carloads, from Estill, Tenn. Combination now applies. Proposed, $1.62 per net ton, based on the proposed Georgia-Alabama joint line scale, less 10%.

16174 (shippers). Sand (other than molding). Carloads, from Paducah, Ky., to Nashville, Tenn. Present, $1.31; proposed, $1.21 per net ton, same as rate recently authorized from Memphis to Nashville, Tenn.

16180 (shipper, rate suggested by carrier). Stone, crushed or screenings. Carloads, from Yellow Rock, Ky., to Louisville, Ky. Present, 47 cents per 100 lb. (Class A); proposed, $1.40 per net ton, to apply intrastate only, same as rates on crushed stone from and to other points on the L. & N. R. R. for similar distances.

16214 (shipper). Cement. Carloads, from Kingsport, Tenn., to L. & N. R. R., Kentucky Division stations and branches, Estrada, Ky., through McRoberts, Ky. Combination rates now apply, except in a few instances where through commodity rates are published. Proposed, to eastern Kentucky Division main line stations, same as in effect from Chattanooga, Tenn., to Eastern Kentucky Division branches, same as checked out by the Fourth Section Committee from Chattanooga, Tenn.

16223 (shippers). Cement. Carloads, from Kingsport, Tenn., to Middlesboro, Falk, Ky., and Cumberland Gap, Tenn. Present, 15 cents; proposed, 14½ cents per 100 lb., same as in effect to local stations on either side of these destination points.

16224 (shippers). Cement. Carloads, from Kingsport, Tenn., Chattanooga, Tenn., Leeds, Ala., Portland, Ga., Ragland, Ala., Richard City, Tenn., and Rockmart, Ga., to High Rock, N. C. It is proposed to reduce present rates to be as follows: From Chattanooga, Tenn., Leeds, Ala., Ragland, Ala., and Richard City, Tenn., 26 cents; Kingsport, Tenn., 21½ cents; Portland, Ga., 25 cents; Rockmart, Ga., 24 cents per 100 lb.; same as rates currently in effect to local stations on the W. S.-S. S. Ry. on either side of High Rock, N. C.

16254 (shippers, rates suggested by carriers). Sand and gravel. Carloads, from Norris, Ga., to Dry Branch and Fitzpatrick, Ga. Present, to Dry Branch, $23; to Fitzpatrick, $24 per car of 36,000 lb.; proposed, to Dry Branch, $1.26; to Fitzpatrick, $1.26 per net ton; based on the proposed Georgia-Alabama joint trunk line scale for Class A lines, less 10%.

16268 (shipper, rate suggested by carrier). Gravel. Carloads, from Nashville, Tenn., to Trenton, Tenn. Present, $1.73 per net ton (Camden, Tenn., combination); proposed $1.62 per net ton, which reflects the basis shown in proposed Georgia-Alabama scale, less 10% for the distance, and is the same as at present in effect on road building stone from Mimms, Tenn.

16272 (carrier). Cancellation of rates on crushed stone. It is proposed to cancel present commodity rates on crushed stone, carloads, from Dividing Ridge, Ky., to L. & N. R. R., Main Stem Division, Strawberry, Ky., to Maplewood, Tenn., inclusive, also Glasgow, Ky., as published in L. & N. R. R. I.C.C. A14612, account of no movement. Class A rates to apply after cancellation.

Illinois Freight Association Docket

1624D. Cement. Carloads, minimum weight, 50,000 lb., except when capacity of car is less actual capacity will govern, but in no case to be less than 40,000 lb., from Continental and Prospect Hill, Mo., to Evansville, Ind., and to Louisville, Ky., applicable on traffic destined to Kentucky points. (In cents.)

To	Present	Proposed
Evansville, Ind.	11½	10
Louisville, Ky.	14½	11½

New England Freight Association Docket

7058. Cement (common, hydraulic, natural or portland). From Hudson Upper, N. Y., to Eagle Bay, N. Y., 25 cents; to Raquette Lake, N. Y., 28 cents. Reason: To place Hudson Upper, N. Y., on a parity with Hudson, N. Y.

7060. Molding sand to Norwich, Conn., from Albany, Brookview, Rensselaer, N. Y., 20 cents; from Niverville, Van Hoesen, N. Y. 19½ cents via B. & A., Palmer, C. V. Ry. Reason: To publish same rate as is applicable via another joint route.

Why Don't Farmers Use More Lime and Limestone?

Agricultural Experts Have Said Over 50,000,000 Tons Should Be Used—Less Than 2,000,000 Tons Are Used

PROBABLY there is not a limestone quarry operator in the United States who has not been through a period of optimistic speculation on the possibility, and probability, of developing a large production of agricultural lime or limestone. ROCK PRODUCTS has contributed to this optimisim time and again; because, like other students and investigators of the problem, the editors are personally convinced of the merits of agricultural lime and limestone. Yet the *use* of lime and limestone by farmers grows very, very slowly; and most limestone quarrymen eventually reach a period of despair of ever seeing this product reach a demand commensurate with its universally acknowledged merits.

There is no cause for despair, but there is need of great patience. A large amount of inertia remains to be overcome, but 50,000,000 tons a year and more will eventually be used. The most enlightening discussion of this interesting subject we have seen in a long time is an article by Prof. Firman E. Bair, Ohio State University, Columbus, Ohio, in the *American Fertilizer* for September, entitled: "Acid or Sweet Soils." We reprint this entire in what follows:

Recent Criticism of Liming in Agricultural Journals

Recently a writer in one of the nationally advertised agricultural journals attempted to show that the use of limestone on soils was nothing more than a passing fad. What he did succeed in showing was that he was unfamiliar with the possibilities both of using limestone and of doing without it.

If one cares to search for it he can find ample evidence of the rejuvenating effect of limestone on the crop-producing powers of soils. A visit to almost any experiment station in the eastern part of America will convince even the most skeptical that lime in the oxide, hydrate or carbonate form is essential for optimum yields of many farm crops on many different types of soil.

A few weeks ago the writer walked over the Ohio Experiment Station at Wooster, Ohio, listening to Director Williams discuss the various fertilizer and liming treatments and their effect on the crop yields. On that part of the farm where the "Lime and Floats Test" is located, we stopped to see what lime had done in 1924.

The field was in hay; very ordinary timothy containing considerable sorrel where the lime was omitted; an exceptionally nice crop of sweet clover where lime had been applied. Neither manure, nor phosphate, nor both together were sufficient to make the sweet clover grow. The material required was limestone, either the ground stone or its burned products.

Is there any question in anyone's mind what the corn crop will look like next year following the timothy as compared to that following the sweet clover?

Collecting Personal Experiences

If it were necessary to make a case for limestone, all one would need to do would be to collect some of the experiences of the users of this magic stone. Almost every day our attention is called to farms where limestone has changed failure into success, where it has built new barns and houses, has painted old ones, has put money in the bank and has placed smiles on the faces of farmers and their wives.

But ever so often someone bobs up and says that liming is all nonsense. And yet Ohio farmers have sold themselves the idea to such an extent that they drag out and apply every year over a fifth of a million tons of this material.

On the other hand, it does seem surprising how little limestone is used as compared to the estimates of what should be used to destroy all the acid in soils. After all, what's 200,000 tons of limestone when considered from the point of view of the 10,000,000 acres of cultivated land in Ohio and the 10,000,000 other acres of pasture land on a considerable part of which the use of limestone is also suggested.

Evidently a large percentage of Ohio farmers are farming acid soils, and one cannot well set aside the judgment of the more substantial thinkers among these men any more readily than he can the judgment of the relatively few who use limestone.

Why More Lime Is Not Used

It must be that good crops can be grown even on acid soils and that there is more than one way to meet the situation. In fact, there are a variety of methods by which the use of lime can be delayed for many years.

One of these lies in good soil management, by selling very little from the farm, except live stock and its products, and by keeping the soil covered with a growing crop as much of the time as possible so as to prevent loss of limestone by leaching.

Another lies in changing the legumes from the more sensitive ones, such as alfalfa and perhaps even little red clover to mammoth clover, alsike clover and soy beans.

A third lies in using liberal amounts of acid phosphate which temporarily reduces the toxicity of an acid soil and supplies calcium which may subsequently be returned to the soil as the carbonate, once it has been used by crops.

Another method lies in keeping the soil well stocked with crop residues which tend to reduce the effectiveness of the acid in the soil. Another is by the use of liberal amounts of fertilizer carrying its nitrogen as nitrate of soda perhaps its phosphorus as bone meal or basic slag. These tend to make the soil alkaline.

It must also be remembered that some crops grow better in soils which are somewhat acid. Watermelons seem to belong to this class. Potatoes and rye are two good crops for acid soils.

The expression the soil is "too poor to grow beans" must mean that navy beans are not particularly sensitive to acid soils. Strawberries grow well on soils which must be limed for many other crops. Oats are not disturbed by the lack of limestone.

Even corn will often do very well on soils which are so acid as to be fatal to even one of the less sensitive legumes such as alsike clover.

Beware of These Crops!

But beware of cabbage, onions, beets, barley, alfalfa, sweet clover, spinach, tobacco and many other of the "high acre value" crops on soils which are deficient in limestone. These crops can be grown on many acid soils if they are liberally fertilized and manured, but they can be grown so much better and the chance of failure is so much reduced that the man whose soil is acid and who fails to use lime for these crops shows poor judgment. And even most of the crops labeled as being not particularly sensitive to acid soils show sufficient response to make liming highly profitable on those soils which contain little of the element calcium.

The policy with reference to lime is not different from that with reference to nitrogen or potash. One can get all of his nitrogen from the air, but sometimes it is better to supplement that from the air with that in the fertilizer bag. Most soils can be made to yield up adequate amounts of potash if the farmer cares to dig for it systematically.

Even the phosphate requirements can be reduced by the careful saving of manure and the thorough farming of the soil with clover and tile. But as time goes on it becomes easier and more profitable to buy phosphate, to add some potash, to use some lime and finally to supplement this with commercial nitrogen. The wise man is he who uses limestone, if limestone pays, and usually when the soil is acid, limestone can be made to pay.

Note that the professor says that the use of lime can be delayed many years. Its use cannot be obviated. Eventually lime will have to be used. Cheer up.

The Rock Products Market

Wholesale Prices of Crushed Stone

Prices given are per ton, F. O. B., at producing plant or nearest shipping point

Crushed Limestone

City or shipping point	Screenings, ¼ inch down	½ inch and less	¾ inch and less	1½ inch and less	2½ inch and less	3 inch and larger
EASTERN:						
Buffalo, N. Y.			1.30 per net ton all sizes			
Chaumont, N. Y.	1.00	.....	1.75	1.50	1.50	1.50
Cobleskill, N. Y.	1.25	1.25	1.25	1.25	1.25	.....
Coldwater, N. Y.			1.50 per net ton all sizes			
Columbia, Ill.	1.10	1.20	1.35	1.35	1.20	1.20
Eastern Pennsylvania	1.35	1.35	1.45	1.35	1.35	1.35
Munns, N. Y.	1.00	1.40	1.40	1.30	.....	.....
Northern New Jersey	.....	.....	1.60	.....	.....	.....
Prospect, N. Y.	1.00	1.40	1.40	1.30	1.30	.....
Walford, Penn.	.....	1.30b	1.30b	1.40b	1.40b	1.60c
Watertown, N. Y.	1.00	.....	1.75	1.50	1.50	1.50
Western New York	.85	1.25	1.25	1.25	1.25	1.25
CENTRAL						
Alton, Ill.	1.75	.....	1.75	1.50	.....	.....
Bloomville, Middlepoint, Dunkirk, Bellevue, Waterville, No. Baltimore, Holland, Kenton, New Paris, Ohio; Monroe, Mich.; Huntington, Bluffton, Ind.	1.00	1.10	1.10	1.10	1.00	1.00
Buffalo, Iowa	.90	.....	1.25	1.05	1.10	1.10
Chicago, Ill.	.80	1.00	1.00	1.00	1.00	1.00
Cypress, Ill.	1.25	1.30	1.25	1.25	1.25	1.15
Dundas, Ont.	.75	.90	.90	.80	.80	.80
Greencastle, Ind.	1.25	1.25	1.15	1.05	1.05	1.05
Krause, Ill.	1.10	1.20	1.35	1.35	1.20	1.20
Lannon, Wis.	.85	1.10	1.10	.95	.95	.95
Linwood, Iowa	.90	.....	1.20	1.00	1.10	1.10
Northern Wisconsin	.75	.....	1.05	.95	.95	.....
St. Vincent de Paul, P. Q.	.75	1.25@1.45	1.10	1.00	1.00	1.00
Stone City, Iowa	.75	.....	.....	1.10@1.20	1.05	.....
Toronto, Canada	2.00‡	2.00‡	2.00‡	1.80‡	1.80‡	1.80‡
Valmeyer, Ill.	1.10	1.20	1.35	1.35	1.20	1.20
Waukesha, Wis.	1.15	1.15	1.15	1.15	1.15	1.15
Youngstown, Ohio	.....	.....	.....	1.50	1.60	1.60
SOUTHERN:						
Alderson, W. Va.	.75	1.75	1.75	1.60	1.50	.....
Bridgeport and Chico, Texas	1.00§	1.35a	1.30a	1.25	1.25	1.10
Cartersville, Ga.	1.50	1.50	1.50	1.00	1.00	1.00
El Paso, Texas	1.00	1.00	1.00	1.00	.....	.....
Ft. Springs, W. Va.	.60	1.60	1.60	1.50	1.40	.....
Graystone, Ala.		Crusher run fluxing stone, 1.00 per net ton				
Graysville, Ga.	1.00@1.25	1.00@1.25	.....	.85@1.25	.85@1.25	.....
WESTERN:						
Atchison, Kans.	.50	2.00	2.00	2.00	2.00	1.60‖@1.80
Blue Spr'gs & Wymore, Neb.	.10	1.45	1.45	1.35@1.40	1.25@1.30	1.20
Cape Girardeau, Mo.	1.35	.....	1.25	1.25	1.00	.....
Kansas City, Mo.	1.00	1.65	1.65	1.65	1.65	1.65

Crushed Trap Rock

City or shipping point	Screenings, ¼ inch down	½ inch and less	¾ inch and less	1½ inch and less	2½ inch and less	3 inch and larger
Branford, Conn.	.60	1.60	1.35	1.15	1.00	.....
Cypress, Ill.	1.00@1.10	.....	.....	.....	.....	.....
Duluth, Minn.	1.00	2.25	1.90	1.50	1.35	1.35
Dwight, Calif.	1.75	1.75	1.75	1.75	1.75	.....
Eastern Maryland	1.10	1.75	1.70	1.60	1.50	1.50
Eastern Massachusetts	.85	1.75	1.75	1.25	1.25	1.25
Eastern New York	.75	1.25	1.25	1.25	1.25	1.25
Eastern Pennsylvania	1.10	1.75	1.70	1.60	1.50	1.50
Minneapolis, Minn.	1.25	.....	2.25	2.00	1.75	.....
New Haven, Conn.	.60	1.60@1.75	1.35@1.50	1.15@1.30	1.00@1.10	.....
Northern New Jersey	1.50	2.00	1.80	1.40	1.40	.....
Richmond, Calif.	.50*	.....	1.50*	1.50*	1.50*	.....
Springfield, N. J.	2.00	2.00	2.00	1.70	1.60	1.50
San Diego, Calif.	.50@ .75	1.80@1.90	1.60@1.80	1.35@1.55	1.35@1.55	1.25@1.45
Westfield, Mass.	.60	1.50	1.35	1.20	1.10	.....

Miscellaneous Crushed Stone

City or shipping point	Screenings, ¼ inch down	½ inch and less	¾ inch and less	1½ inch and less	2½ inch and less	3 inch and larger
Berlin, Utley and Red Granite, Wis.	1.60	1.70	1.60	1.50	1.40	.....
Eastern Penn.—Sandstone	1.25	1.65	1.60	1.40	1.40	1.25
Eastern Penn.—Quartzite	1.20	1.35	1.20	1.20	1.20	1.20
Lithonia, Ga.—Granite Sand	.50	1.75	1.75	1.25	1.15	.....
Lohrville, Wis.	1.65	1.65@1.70	1.65	1.45	1.50	.....
Middlebrook, Mo.—Granite	3.00@3.50	.....	2.00@2.25	2.00@2.25	.....	1.25@2.20
Northern New Jersey (Basalt)	150	2.00	1.80	1.40	1.40	.....

* Cubic yd. †1 in. and less. ‡Prices include 90c freight. ‖Rip rap per ton. §Dust in. (a) Dust out; (b) less 5c 10 days; (c) less 10c 10 days (2¾" to ⅝").

Agricultural Limestone
(Pulverized)

Asheville, N. C.—Analysis, 57% $CaCO_3$, 39% $MgCO_3$; 50% thru 100 mesh; 200-lb. burlap bag, 4.00; bulk	2.75
Branchton, Penn.—100% thru 20 mesh; 60% thru 100 mesh; 45% thru 200 mesh. (Less 50 cents commission to dealers)	5.00
Bridgeport and Chico, Texas; bulk	5.50
Cartersville, Ga.—Analysis 68% $CaCO_3$, 30% $MgCO_3$; pulverized	2.00
50% thru 50 mesh	1.50
Chaumont, N. Y.—Pulverized limestone, bags, 4.00; bulk	2.50
Colton, Calif.—Analysis, 95% $CaCO_3$, 3% $MgCO_3$—all thru 20 mesh—bulk	4.00
Dundas, Ont., Can.—Analysis, 53.80% $CaCO_3$, 43.31% $MgCO_3$; 35% thru 100 mesh, 50% thru 50 mesh, 100% thru 10 mesh; bags, 4.75; bulk	3.00
Hillsville, Penn.—Analysis, 94% $CaCO_3$, 1.40% $MgCO_3$, 75% thru 100 mesh; sacks, $5.00; bulk	3.50
Jamesville, N. Y.—Analysis, 89.25% $CaCO_3$; 5.25% $MgCO_3$; pulverized, bags, 4.00; bulk	2.50
Knoxville, Tenn.—80% thru 100 mesh, bags, 3.95; bulk	2.70
Linville Falls, N. C.—Analysis, 57% $CaCO_3$, 39% $MgCO_3$; 50% thru 100 mesh; 200-lb. burlap bag, 4.00; bulk	2.75
Marblehead, Ohio—Analysis, 83.54% $CaCO_3$, 14.92% $MgCO_3$; 60% thru 100 mesh; 70% thru 50 mesh; 100% thru 10 mesh; 80 lb. paper sacks, 5.00; bulk	3.50
Marion, Va.—Analysis, 90% $CaCO_3$, 2% $MgCO_3$; 42.5% thru 100 mesh, 11.3% thru 80, 20.2% thru 60, 22.8% thru 40, 3.2% thru 20 and under or 75% thru 40 mesh; pulverized, per ton	2.00
Mayville Wis.—59.8% thru 60 mesh	2.35
Mountville, Va.—Analysis 76.60% $CaCO_3$, 22.83% $MgCO_3$; 50% thru 100 mesh, 100% thru 20 mesh—125-lb. hemp bags	5.00
Osborne, Penn.—100% thru 20 mesh; 60% thru 100 mesh; 45% thru 200 mesh. (Less 50 cents commission to dealers)	5.00
Piqua, Ohio—Total neutralizing power 95.3%; 100% thru 10, 60% thru 50; 50% thru 100	2.10@ 2.25
100% thru 10, 90% thru 50, 80% thru 100; bags, 5.00; bulk	3.50
100% thru 100, 85% thru 200; bags, 7.00; bulk	5.50
Rockdale, Mass.—Analysis, 90% $CaCO_3$—50% thru 100 mesh; paper bags, 4.75; cloth, 5.25; bulk	3.25
Watertown, N. Y.—Analysis, 96-98% $CaCO_3$, pulverized limestone, bags, 4.00; bulk	2.00
West Stockbridge, Mass.—Analysis, 90% $CaCO_3$—50% thru 100 mesh: paper bags, 4.75; cloth, 5.25; bulk	3.25

Agricultural Limestone
(Crushed)

Alderson, W. Va.—Analysis, 90% $CaCO_3$; 50% thru 100 mesh	1.50
Alton, Ill.—Analysis 98% $CACO_3$; 50% thru 4 mesh, 3.00; 90% thru 4 mesh	1.75
Bedford, Ind.—Analysis, 98½% $CACO_3$, ½% $MgCO_3$; 90% thru 10 mesh	1.50
Bettendorf, Iowa—97% $CaCO_3$, 2% $MgCO_3$; 50% thru 100 mesh; 50% thru 4 mesh	1.50
Blackwater, Mo.—95% $CaCO_3$; 100% thru 8 mesh	1.00
Bridgeport and Chico, Texas—90% thru 100 mesh; 50% thru 100 mesh; 90% thru 50 mesh, bulk	2.50
50% thru 50 mesh; 90% thru 4 mesh; 50% thru 4 mesh; bulk	1.50
Cape Girardeau, Mo.—Analysis, 93% $CaCO_3$, 3.5% $MgCO_3$; 90% thru 50 mesh	1.50

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Agricultural Limestone

(Continued from preceding page)

Carthage, Mo. — Analysis, 98½% $CaCO_3$; 100% thru 10 mesh, 30% thru 100 mesh	1.75
Chicago, Ill.—50% thru 100 mesh; 90% thru 4 mesh	.80
Cypress, Ill. — Analysis, 90 to 96% $CaCO_3$; 50% thru 100 mesh, 90% thru 50 mesh, 50% thru 50 mesh	1.90
Ft. Springs, W. Va.—Analysis, 90% $CaCO_3$; 90% thru 50 mesh	1.50
Kansas City, Mo.—50% thru 100 mesh	1.25
Krause, Columbia and Valmeyer, Ill.—Analysis, 90% $CaCO_3$; 90% thru 4 mesh	1.10
Lannon, Wis.—Analysis, 54% $CaCO_3$, 44% $MgCO_3$; 99% through 10 mesh; 46% through 60 mesh	2.00
Screenings (¼ in. to dust)	1.00
Marblehead, Ohio.—Analysis, 83.54% $CaCO_3$, 14.92% $MgCO_3$; 100% thru 4 mesh; 85% thru 10 mesh; 53% thru 50 mesh; 40% thru 100 mesh bulk	2.60
32% thru 100 mesh; 51% thru 50 mesh; 83% thru 10 mesh; 100% thru 4 mesh (meal) bulk	2.25
Middlepoint, Bellevue, Kenton, Ohio; Monroe, Mich.; Huntington and Bluffton, Ind. — Analysis, 52% $CaCO_3$, 44% $MgCO_3$; meal, 100% thru 4 mesh, 35% thru 100 mesh	.75@ 1.50
Milltown, Ind. — Analysis, 94.41% $CACO_3$, 2.95% $MgCO_3$; 30.8% thru 100 mesh .38% thru 50 mesh	1.45@ 1.60
Moline, Ill.—97% $CaCO_3$, 2% $MgCO_3$ —50% thru 100 mesh; 50% thru 4 mesh	1.50
Pixley, Mo.—Analysis, 96% $CACO_3$; 50% thru 50 mesh	1.25
River Rouge, Mich.—Analysis, 54% $CaCO_3$, 40% $MgCO_3$; bulk	.80@ 1.40
Stone City, Iowa. — Analysis, 98% $CaCO_3$; 50% thru 50 mesh	.75

Pulverized Limestone for Coal Operators

Hillsville, Penn., sacks, 4.50; bulk	3.00

Miscellaneous Sands

Silica sand is quoted washed, dried and screened unless otherwise stated. Prices per ton.

Glass Sand:	
Aetna, Ind. (Box cars, net)	.35
Berkeley Springs, W. Va.	2.25@ 2.50
Cedarville, N. J.—Damp	1.75
Dry	2.25
Cheshire, Mass: 6.00 to 7.00 per ton; bbl.	2.50
Columbus, Ohio	1.25@ 1.50
Grays Summit and Klondike, Mo.	2.00
Mapleton Depot, Penn.	2.00@ 2.25
Massillon, Ohio	3.00
Millville, N. J.—Green bottle sand	1.75@ 2.25
Mineral Ridge and Ohlton, Ohio	2.50
Oceanside, Calif.	3.00@ 3.40
Pacific, Mo.	2.25@ 3.00
Pittsburgh, Penn.—Dry	4.00
Damp	3.00
Ridgway, Penn.	2.50
Rockwood, Mich.	2.75@ 3.25
Round Top, Md.	2.00@ 2.25
San Francisco, Calif.	3.00@ 3.50
St. Louis, Mo.	1.50@ 3.00
South Vineland, N. J.—Damp	1.75
Dry	2.25
Thayers, Penn.	1.00@ 2.50
Utica, Ill.	1.25
Zanesville, Ohio	2.50
Foundry Sand:	
Aetna, Ind.: Core, Box cars, net, .35; open-top cars	.30
Furnace lining, traction, open-top cars	.30
Albany, N. Y.: Core	1.50
Molding fine, brass molding	2.25
Molding coarse	2.00
Sand blast	4.00
Arenzville, Ill.: Core	.75
Molding fine	1.40@ 1.60
Brass molding	1.75
Cheshire, Mass.—Furnace lining, molding fine and coarse	5.00
Sand blast	5.00@ 8.00
Stone sawing	6.00

(Continued on next page)

Wholesale Prices of Sand and Gravel

Prices given are per ton, f. o. b. producing plant or nearest shipping point

Washed Sand and Gravel

City or shipping point	Fine Sand, 1/10 in. down	Sand, ¼ in. and less	Gravel, ½ in. and less	Gravel, 1 in. and less	Gravel, 1½ in. and less	Gravel, 2 in. and less
EASTERN:						
Attica, N. Y.	.75	.75	.85	.75	.75	.75
Buffalo, N. Y.	1.10	.95			.85	
Erie, Penn.		1.00		1.25	1.50	
Farmingdale, N. J.	.58	.48	.85	1.30	1.10	
Franklinville, N. Y.	.75	.75	.85	.75	.75	.75
Leeds Jct., Maine		.50	1.75		1.35	1.25
Machias, N. Y.	.85	.85	.75	.75	.75	.75
Northern New Jersey		.40@ .60	1.25	1.25	1.25	1.25
Pittsburgh, Penn., and vicinity	1.25	1.25	.85	.85	.85	.85
Shining Point, Penn.			1.00	1.00	1.00	1.00
Washington, D. C.—Rewashed, river	.85	.85	1.70	1.50	1.30	1.30
CENTRAL:						
Attica, Ind.	.75	.75	.75	.75	.75	.75
Barton, Wis.		.22@ .40	.20@ .40	.20@ .40	.32@ .40	
Columbus, Ohio.	.75	.75@1.00	.75@1.00	.75@1.00	.75@1.00	.75@1.00
Covington, Ind.	.75	.75	.75	.75	.75	.75
Des Moines, Iowa	.50	.50	1.25	1.60	1.60	1.60
	Unwashed ballast, .50 a ton; washed, .75 (none screened)					
Eau Claire, Wis.	.75@1.00	.40	.85@1.25			.85
Elkhart Lake, Wis.	.60	.40	.40	.60	.50	.50
Ft. Dodge, Iowa	1.00		2.05	2.05	2.05	
Ft. Worth, Texas	2.00	2.00	2.00	2.00	2.00	2.00
Grand Rapids, Mich.		.50		.80	.70	.70
Hamilton Ohio		1.00			1.00	
Hersey, Mich.		.50				.70
Indianapolis, Ind.	.60	.60		.90	.75@1.00	.75@1.00
Janesville, Wis.		.65@ .75			.65@ .75	
Mason City, Iowa	.45@ .55	.45@ .55	1.35@1.45	1.45@1.55	1.40@1.50	1.35@1.45
Mankato, Minn.		.50	1.25	1.25	1.35	
Milwaukee, Wis.	1.01	1.01	1.21	1.21	1.21	1.21
Minneapolis, Minn.*	.65	2.50†	2.00§		2.00	1.75
Moline, Ill.	.60	.60	1.20	1.20	1.20	1.20
Palestine, Ill.	.75	.75	.75	.75	.75	.75
Riton, Wis.	.40	.20			.40	
St. Louis, Mo., f. o. b. cars	1.18	1.45	1.65§	1.45		1.45‖
Silverwood, Ind.	.75	.75	.75	.75	.75	.75
Summit Grove, Ind.	.75	.75	.75	.75	.75	.75
Terre Haute, Ind.	.75	.60	.75	.75	.75	.75
Waukesha, Wis.	.55	.55	.75	.75	.75	.75
Winona, Minn.	.40	.40	1.25	1.10	1.00	1.00
Yorkville, Sheridan, Oregon, Moronts, Ill.			Average .60@.65 pit			
Zanesville, Ohio	.70	.60	.60		.90	
SOUTHERN:						
Brookhaven, Miss., Roseland La.	.70	.70	2.25	1.50	1.25	
Charleston, W. Va.	all sand 1.37 f.o.b. cars		all gravel 1.47 f.o.b. cars			
Chehaw, Ala.	1.24	1.24		1.90	1.90	1.90
Estill Springs and Sewanee, Tenn.	1.00@1.25	.90			.85	.85
Knoxville, Tenn.	1.00	1.00	1.20	1.20	1.20	1.20
Macon and Gallaird, Ga.	.50	.50	.75	.65	.65	.65
New Martinsville, W. Va.	1.00	.90		1.30		.90
WESTERN:						
Baldwin Park, Calif.		.25@ .35			.50@ .75	
Crushed rock	.90@1.10	.60@ .90	.60@ .90	.60@ .90	.60@ .90	
Kansas City, Mo.			Kaw river sand .75 per ton f.o.b. plants			
Los Angeles, Calif.	1.00*	1.00*	1.50*	1.50*	1.40*	1.40*
Pueblo, Colo.	1.10*	.90*		1.75*		1.60*
San Diego, Calif.	50@ .65	.80@ .90	1.40@1.50	1.20@1.30	1.00@1.10	1.00@1.10
Seattle, Wash. (bunkers)	1.50*	1.50*	1.50*		1.50*	1.50*
Webb City, Mo.	.75	.75	.25@ .75b	.85b	1.25c	1.15c

Bank Run Sand and Gravel

City or shipping point	Fine Sand, 1/10 in. down	Sand, ¼ in. and less	Gravel ½ in. and less	Gravel, 1 in. and less	Gravel, 1¼ in. and less	Gravel, 2 in. and less
Boonville, N. Y.	.60@ .80		.55@ .75			1.00
Brookhaven, Miss., Rosel'd, La.			Road gravel, ballast gravel .60 a ton			
Chehaw, Ala.	.90@1.00					
Dudley, Ky.‡	1.05	1.05		.95		
East Hartford, Conn.			Sand, .65 per cu. yd.			
Elkhart Lake, Wis.	.50					
Gainesville, Texas		.95				.55
Grand Rapids, Mich.				.55		
Hamilton, Ohio					.70	
Hersey, Mich.				.55		
Indianapolis, Ind.			Mixed gravel for concrete work, .65			
Lindsay, Texas						.55
Macon, Ga.	.35	.35				
Mankato, Minn.			Pit run gravel, .60			
Moline, Ill.	60	.60	Concrete gravel, 50% G., 50% S., 1.00			
Montezuma, Ind.						.60
St. Louis, Mo.			Mine run gravel 1.55 per ton			
Shining Point, Penn.			Concrete sand, 1.10 ton			
Summit Grove, Ind.	.50	.50	.50	.50	.50	.50
Waukesha, Wis.	.60	.60	.60	.60	.60	.60
Winona, Minn.	.60	.60	.60	.60	.60	.60
York, Penn.	1.00	1.00				
Zanesville, Ohio		.60				

*Cubic yd.; †roofing gravel; §⅝ in. and less; ‡crushed rock; ‖2½ in. and less; (a) ¾ in. and less; (b) flint chats; (c) crushed flint.

Miscellaneous Sands

(Continued from preceding page)

Columbus, Ohio:		
Core	.25@	.30
Furnace lining		2.50
Molding fine		2.00
Molding coarse	1.50@	2.00
Sand blast	3.00@	4.00
Stone sawing		1.50
Traction	.30@	.65
Brass molding	2.00@	2.50
Dresden, Ohio:		
Core		1.25
Furnace lining, brass molding		1.50
Molding fine and coarse	1.25@	1.50
Traction		1.00
Dunbar, Penn.:		
Traction (damp)		2.00
Eau Claire, Wis.:		
Sand blast	3.00@	4.25
Elco, Ill.:		
Ground silica per ton in carloads	20.00@	31.00
Estill Springs and Sewanee, Tenn:		
Molding sand		1.40
Franklin, Penn.:		
Core	1.50@	1.75
Furnace lining, molding fine		1.75
Molding coarse		1.50
Brass molding		2.00
Grays Summit, Mo.:		
Molding fine	1.75@	2.00
Joliet, Ill.:		
No. 2 molding sand; also loam for luting purposes and open-hearth work	.65@	.85
Klondike, Mo.:		
Molding fine	1.75@	2.00
Mapleton Depot, Penn.:		
Molding fine		2.25
Molding coarse		2.10
Massillon, Ohio:		
Molding fine, coarse, furnace lining core, and stone sawing		2.50
Traction		2.25
Mineral Ridge and Ohlton, Ohio:		
Core		2.25
Furnace lining, molding fine and coarse, roofing sand, sand blast, stone sawing, traction (all green)		2.00
Montoursville, Penn.:		
Core, molding fine		1.40
Traction		1.35
New Lexington, Ohio:		
Molding fine		2.00
Molding coarse		1.50
Oceanside, Calif.:		
Roofing sand (stucco)	3.00@	3.40
Ottawa, Ill.:		
Crude silica sand	.75@	1.00
Pacific, Mo.:		
Core, furnace lining	1.00@	1.25
Molding fine	.90@	1.00
Stone sawing	1.00@	1.75
Molding coarse	.85@	1.00
Ridgway, Penn.:		
Core		2.00
Furnace lining, molding fine, molding coarse		1.25
Traction		2.25
Round Top, Md.:		
Core, molding fine		1.60
Traction		1.75
St. Louis, Mo.:		
Core	1.00@	1.75
Furnace lining		1.50
Molding fine	1.50@	2.50
Molding coarse	1.25@	1.75

Miscellaneous Sands

(Continued)

Roofing sand		1.75
Sand blast	3.50@	4.50
Stone sawing	1.25@	2.25
Traction		1.25
Brass molding	2.00@	3.00
San Francisco, Calif.: (Washed and dried)—Core, molding fine, roofing sand and brass molding	3.00@	3.50
San Francisco, Calif. (Direct from Pit)		
Furnace lining, molding coarse, sand blast		3.60
Stone sawing, traction		2.30
Tamalco, Ill.:		
Molding coarse	1.40@	1.60
Brass molding		1.75
Tamms, Ill.:		
Ground silica per ton in carloads	20.00@	31.00
Thayers, Penn.:		
Core		2.00
Molding fine and coarse		1.25
Traction		2.25
Utica, Ill.:		
Core, furnace lining, molding fine and coarse	.60@	1.25
Roofing sand, traction		1.00
Sand blast		2.50
Stone sawing	1.00@	2.50
Brass molding		1.25
Utica, Penn.:		
Core, molding fine, brass molding		2.00
Molding coarse	1.50@	1.75
Warwick, Ohio.:		
Core, molding fine (green) 1.75; dry		2.50
Furnace lining		2.50
Zanesville, Ohio:		
Sand blast, core, traction		2.50
Furnace lining		2.25
Molding fine and coarse; brass molding	1.50@	1.75

Crushed Slag

City or shipping point	Roofing	¼ in. down	½ in. and less	¾ in. and less	1¼ in. and less	2½ in. and less	3 in. and larger
EASTERN:							
Buffalo, N. Y.	2.25	1.25	1.25	1.25	1.25	1.25	1.25
E. Canaan, Conn.	3.00	1.00	2.25	1.25	1.25	1.15	1.15
Eastern Penn. and Northern N. J.	2.50	1.20	1.50	1.20	1.20	1.20	1.20
Reading, Pa.	2.50	1.00	2.50	1.25	.....	.....	.....
Western Penn.	2.50	1.25	1.50	1.25	1.25	1.25	1.25
CENTRAL:							
Ironton, Ohio	2.05	1.45	1.75	1.45	.....	1.45	.....
Jackson, Ohio	.....	1.30	.....	1.30	1.30	1.30	.....
Toledo, Ohio	1.50	1.25	1.25	1.25	1.25	1.25	1.25
Youngstown, Dover, Hubbard, Leetonia, Struthers, O.	2.00	1.25	1.35	1.35	1.25	1.25	1.25
SOUTHERN:							
Ashland, Ky.	.....	1.55	.....	1.55	1.55	1.55	.....
Ensley and Alabama City, Ala.	2.05	.80	1.25	1.15	.90	.90	.80
Longdale, Goshen, Glen Wilton, Roanoke, Ruesens, Va.	2.50	1.00	1.25	1.25	1.25	1.15	1.15

Lime Products (Carload Prices Per Ton F.O.B. Shipping Point)

	Finishing hydrate	Masons' hydrate	Agricultural hydrate	Chemical hydrate	Ground burnt lime, Blk.	Ground burnt lime, Bags	Lump lime, Blk.	Lump lime, Bbl.
EASTERN:								
Berkeley, R. I.	.....	.....	12.00	.....	.....	.....	.....	2.30
Buffalo, N. Y.	.....	.....	.....	12.00	.....	.....	.....	.....
Lime Ridge, Penn.	.....	.....	.....	.....	.....	.....	5.00a	.....
West Stockbridge, Mass.	.....	10.50	6.00l	.....	.....	.....	.....	3.25m
Williamsport, Penn.	.....	.....	10.00	.....	.....	.....	6.00	.....
York, Penn.	.....	10.50	10.50	11.50	.....	.....	8.50	1.65i
CENTRAL:								
Cold Springs, Ohio	.....	9.50	9.00	.....	.....	.....	9.00	.....
Delaware, Ohio	12.50	9.00	9.00	10.00	.....	.....	9.00	1.60
Gibsonburg, Ohio	12.50	.....	.....	.....	9.00	11.00	.....	.....
Huntington, Ind.	.....	9.50	9.50	.....	9.00	.....	8.50	1.50b
Luckey, Ohio (f)	12.50	.....	.....	.....	.....	.....	.....	.....
Marblehead, Ohio	.....	9.50	9.50	.....	.....	.....	8.50	1.50c
Marion, Ohio	.....	9.50	9.50	.....	.....	.....	8.50	1.70j
Mitchell, Ind.	.....	12.00	12.00	12.00	11.00	.....	10.00	1.70e
Tiffin, Ohio	.....	.....	.....	.....	9.00	.....	.....	.....
White Rock, Ohio	12.50	.....	.....	.....	9.00	11.00	.....	.....
Woodville, Ohio	12.50†	9.50†	8.50†	12.50†	9.00	10.50	9.00	1.60
SOUTHERN:								
Erin, Tenn.	.....	.....	.....	.....	.....	.....	8.50	1.40*
El Paso, Texas	.....	.....	.....	.....	.....	.....	9.00	1.50
Graystone, Ala.	12.50	11.00	11.00	11.00	.....	.....	8.50n	1.50k
Karo, Va.	.....	10.50	9.00	.....	.....	.....	7.00g	1.65h
Knoxville, Tenn.	12.50	11.00	.....	11.00	.....	1.35	8.50	1.50
Staunton, Va. (boss lime)	.....	.....	.....	.....	.....	.....	.....	1.30
Varnons, Fla. (f)	.....	10.50	6.00	11.00	.....	.....	8.50	1.50
Zuber and Ocala, Fla.	14.00	12.00	10.00	.....	.....	.....	11.00	1.60
WESTERN:								
Kirtland, N. M.	.....	.....	.....	.....	.....	.....	12.50h	.....
San Francisco, Calif.	22.00	22.00	15.00	22.00	.....	.....	.....	2.50
Tehachapi, Calif.	.....	.....	.....	.....	.....	.....	13.00	2.00d

*And 1.50; †50-lb. paper bags; (a) F. O. B. Kilns; (b) wooden bbl.; (c) wooden, steel 1.70; (d) to 2.15; (e) wood bbl.; $2.20 drum in steel; (f) dealers' prices; (g) to 9.50; (h) to 1.75; (i) 200 lb. bbl.; 2.65, 300 lb. bbl.; (j) steel; (k) jute bags, 1.35; (l) bags; (m) finishing lime, $2.50 common; (n) to 10.00.

Talc

Prices given are per ton f.o.b. (in carload lots only), producing plant, or nearest shipping point.

Baltimore, Md.:		
Crude talc (mine run)	3.00@	4.00
Ground talc (20-50 mesh), bags		10.00
Cubes		55.00
Blanks (per lb.)		.08
Pencils and steel workers' crayons, per gross		1.25
Chatsworth, Ga.:		
Crude—f.o.b. cars		4.00
Ground (20-50 mesh) bags extra		6.50
Ground (150-200 mesh) 7.00; bags		10.00
Pencils and steel workers' crayons, per gross		1.50
Chester, Vt.:		
Ground (20-70 mesh)	7.00@	8.00
E. Granville, Rochester, Johnson, Waterbury, Vt.:		
Ground talc (20-50 mesh) bags	7.00@	10.00
Ground talc (150-200 mesh) bags	10.00@	25.00
Pencils and steel workers' crayons, per gross	.75@	2.00
Emeryville, N. Y.:		
(Double air floated) including bags; 325 mesh		14.75
Hailesboro, N. Y.:		
Ground (150-200 mesh) bags		18.00
Henry, Va.:		
Crude talc (mine run) per 2000-lb. ton	2.75@	3.50
Ground (150-200 mesh), bags	8.50@	14.00
Joliet, Ill.		
Ground (150-200 mesh) bags	28.00@	30.00
Keeler, Calif.:		
(150-200 mesh); carloads, 30 tons or more (bags extra)	20.00@	30.00
Marshall, N. C.:		
Crude	4.00@	8.00
Ground (20-50 mesh), bags extra	6.50@	8.50
Ground (150-200 mesh), bags	8.00@	12.00
Natural Bridge, N. Y.:		
Ground talc (300-325 mesh), 200-lb. bags	13.00@	15.00

Rock Phosphate

Prices given are per ton (2240-lb.) f.o.b. producing plant or nearest shipping point.

Lump Rock

Centerville, Tenn.—B.P.L. 65%, bags		8.50
Bulk		6.50
Gordonsburg, Tenn.—B.P.L. 68-72%.	4.00@	4.50
Mt. Pleasant, Tenn.—B.P.L. 72%	5.50@	6.00
13% phosphoric acid, 95% thru 80 mesh		5.75
75% hand mined	6.50@	6.75
75% washed over ¼-in. screen		6.75
75% max. 5½% I and A	6.50@	7.00
78% max. 4½% I and A		8.00
Tennessee—F. O. B. mines, gross ton, unground Tenn. brown rock, 72% min. B.P.L.		5.50
Twomey, Tenn.—B.P.L. 65%	7.00@	8.00

(Continued on next page)

Roofing Slate

The following prices are per square (100 sq. ft.) for Pennsylvania Blue-Clay Roofing Slate, f. o. b. cars quarries:

Sizes	Genuine Bangor, Washington Big Bed, Franklin Big Bed	Genuine Albion	Slatington Small Bed	Genuine Bangor Ribbon
24x12	$10.20	$10.00	$8.10	$7.80
24x14	10.20	10.00	8.10	7.80
22x12	10.80	10.00	8.40	8.75
22x11	10.80	10.50	8.40	8.75
20x12	12.60	10.50	8.70	8.75
20x10	12.60	11.00	8.70	8.75
18x10	12.60	11.00	8.70	8.75
18x 9	12.60	11.00	8.70	8.75
16x10	12.60	11.00	8.40	8.75
16x 9	12.60	11.00	8.40	8.75
16x 8	12.60	11.00	8.40	8.75
18x12	12.60	11.00	8.70	8.75
16x12	12.60	11.00	8.40	8.75
14x10	11.10	11.00	8.10	7.80
14x 8	11.10	10.50	8.10	7.80
14x 7 to 12x6	9.30	10.50	7.50	7.80
	Mediums	Mediums	Mediums	Mediums
24x12	$ 8.10	$8.10	$7.20	$5.75
22x11	8.40	8.40	7.50	5.75
Other sizes	8.70	8.70	7.80	5.75

For less than carload lots of 20 squares or under, 10% additional charge will be made.

(Continued from preceding page)

Ground Rock

Mt. Pleasant, Tenn.—B.P.L. 65%, 2000 lb.	7.00
Twomey, Tenn.—B.P.L. 65%	7.00@ 8.00

Florida Soft Phosphate

(Raw Land Pebble)

Per Ton

Florida—F. O. B. mines, gross ton, 68/66% B.P.L., Basis 68%	2.25
70% min. B.P.L., Basis 70%	2.50
72% min. B.P.L., Basis 72%	2.75
75/74% B.P.L., Basis 75%	3.75

Fluorspar

Fluorspar—80% and over calcium fluoride, not over 5% silica; per ton f.o.b. Illinois and Kentucky mines	18.00
Fluorspar—85% and over calcium fluoride, not over 5% silica; per ton f.o.b. Illinois and Kentucky mines	19.50

Special Aggregates

Prices are per ton f. o. b. quarry or nearest shipping point.

City or shipping point	Terrazzo	Stucco chips
Barton, Wis., f.o.b. cars		10.50
Chicago, Ill.—Stucco chips, in sacks f.o.b. quarries		17.50
Crown Point, N. Y.—Mica Spar		7.00@ 8.00
Easton, Penn.—Royal green, evergreen, creme, sylvan		10.00@18.00
Grit sizes		3.00@ 5.00
Haddam, Conn.—Felstone buff	12.00	12.00
Harrisonburg, Va.—Blk. marble (crushed, in bags	14.50@22.50	14.50@22.50
Ingomar, Ohio (in bags)		20.00
Middlebrook, Mo.—Red		25.00@30.00
Milwaukee, Wis.		14.00@34.00
Newark, N. J.—Roofing granules		7.50
New York, N. Y.—Red and yellow Verona		32.00
Poultney, Vt., 2000 lb.		6.12
Saginaw, Mich.		12.00
Phillipsburg, N. J.—Evergreen, bulk	8.00@10.00	8.00@10.00
Creme and royal, bulk	15.00@20.00	15.00@20.00
Red Granite, Wis.		7.50
Sioux Falls, S. D.	7.50	7.50
Stockton, Cal.—Crushed quartz, red rock, greenstone, jasper, sacks		*10.00
Tuckahoe, N. Y.—2000 lb.		12.00@20.00
Wauwatosa, Wis.		20.00@34.00
Whitestone, Ga.—White marble chips, net ton in bulk, f.o.b. cars, granite	4.50@ 6.00	4.50@ 6.00

*LCL, 10% higher.

Concrete Brick

Prices given per 1000 brick, f.o.b. plant or nearest shipping point.

	Common	Face
Appleton, Minn.	22.00	
Baltimore, Md. (Del. to job in city)	16.00@16.50	22.50@50.00
Ensley, Ala. ("Slagtex")	12.50	22.50@33.50
Eugene, Ore.	25.00	35.00@75.00
Friesland, Wis.	22.00	32.00
Omaha, Neb.	18.00	30.00@40.00
Philadelphia, Penn.	15.25	21.00
Portland, Ore. (del. loc.)	21.00	30.00@100.00
Prairie du Chien, Wis.	14.00	21.50@30.00
Puyallup, Wash.	20.00	30.00@100.00
Rapid City, S. D.	18.00	25.00@45.00
Salem, Ore.	23.00	50.00
Seattle, Wash.	22.00	40.00
Watertown, N. Y.	21.00	35.00
Wauwatosa, Wis.	14.00@18.00	30.00@42.00
Winnipeg, Can.	15.50	

Sand-Lime Brick

Prices given per 1000 brick f. o. b. plant or nearest shipping point, unless otherwise noted.

Barton, Wis.	10.50
Boston, Mass.	15.00@16.50
Dayton, Ohio	12.50@13.50
Grand Rapids, Mich. (wholesale)	9.00
Jackson, Mich.	13.00
Lancaster, N. Y.	12.50
Michigan City, Ind.	11.00
Milwaukee, Wis. (delivered)	13.50
Plant City, Fla.	11.00@15.00
Portage, Wis.	15.00
Rochester, N. Y.	19.75
Saginaw, Mich.	12.00
San Antonio, Texas	12.50@14.00
Syracuse, N. Y.	18.00

Gray Klinker Brick

El Paso, Texas	13.00

Lime

Warehouse prices, carload lots at principal cities.

	Hydrated, Finishing	per ton Common
Atlanta, Ga.	22.50	14.00
Baltimore, Md.	24.25	17.85
Boston, Mass.	20.50	15.50
Cincinnati, Ohio	16.80	14.30
Chicago, Ill.	20.00	18.00
Dallas, Tex.	20.00	------
Denver, Colo.	24.00	------
Detroit, Mich.	22.00	20.00
Minneapolis, Minn. (white)	25.50	21.00
Montreal, Que.	------	21.00
New York, N. Y.	18.20	13.10
Philadelphia, Penn.	23.00	16.00
St. Louis, Mo.	24.00	20.00
San Francisco, Calif.	22.60	------
Seattle, Wash. (paper sacks)	24.00	------

Portland Cement

Prices per bag and per bbl. without bags net in carload lots.

	Per Bag	Per Bbl.
Albany, N. Y.	------	2.62
Atlanta, Ga.	------	2.35
Boston, Mass.	------	2.63@3.03†
Buffalo, N. Y.	------	2.48@2.88†
Cedar Rapids, Iowa	.61	2.44
Cincinnati, Ohio	.61¼	2.47
Cleveland, Ohio	.59¼	2.39
Chicago, Ill.	.55	2.20
Columbus, Ohio	------	2.44
Dallas, Texas	.53¼	2.15
Davenport, Iowa	.59¼	2.39
Dayton, Ohio	------	2.48
Denver, Colo.	.63¼	2.55
Detroit, Mich.	.60	2.30@2.40
Duluth, Minn.	.54¼	2.19
Indianapolis, Ind.	.60¼	2.41
Kansas City, Mo.	.54¼	2.47
Los Angeles, Cal. (less 5c dis.)	.65	2.98
Memphis, Tenn.	------	2.60
Milwaukee, Wis.	.58¾	2.25@2.35
Minneapolis, Minn.	.60½	2.42
Montreal, Canada (sks. 20c ext.)	------	1.90b
New Orleans, La.	------	2.40
New York, N. Y.	------	2.25@2.65†
Philadelphia, Penn.	------	2.41@2.81†
Phoenix, Ariz.	.82½	3.30
Pittsburgh, Penn.	.54¾	2.19
Portland, Ore.	------	3.05
San Francisco, Cal.	------	2.61*
St. Louis, Mo.	.57½	2.30
St. Paul, Minn.	.60½	2.42
Seattle, Wash. (10c bbl. dis.)	------	2.90
Toledo, Ohio	.61¼	2.45

NOTE—Add 40c per bbl. for bags.
*5c cash disc. 10 days.
†Prices to contractors, including bags.
(b) Less 10c 20 days.

Mill prices f.o.b. in carload lots, without bags, to contractors.

	Per Bag	Per Bbl.
Buffington, Ind.	.48¾	1.95
Concrete, Wash.	------	2.60
Dallas, Texas	------	2.10
Fordwick, Va.	------	2.05
Hannibal, Mo.	------	2.05
Hudson, N. Y.	------	2.05
Kingsport, Tenn.	------	2.05
Leeds, Ala.	------	1.95
Northampton, Penn.	------	1.95
Steelton, Minn.	.50	2.00
Universal, Penn.	.58¾	1.95

Gypsum Products—CARLOAD PRICES PER TON AND PER M SQUARE FEET, F. O. B. MILL

	Crushed Rock	Ground Gypsum	Agricultural Gypsum	Stucco Calcined Gypsum	Cement and Gauging Plaster	Wood Fiber	White Gauging	Sanded Plaster	Keene's Cement	Trowel Finish	Plaster Board ¼x32x36" Weight 1500 lb. Per M Sq. Ft.	Plaster Board ⅜x32x36" Weight 1850 lb. Per M Sq. Ft.	Wallboard, ⅜x32 or 48" Lengths 6'-10', 1850 lb. Per M Sq. Ft.
Agatite, Texas (a)	------	------	6.00	10.00	10.00	10.50	10.00	------	19.00	------	------	------	------
Akron, N. Y. (a)	3.00	4.00	6.00	10.00	10.00	10.00	20.20	7.00@9.00	27.35	21.00	19.375	20.00	30.00@32.00
Black Hawk, S. D.	3.50	------	7.00	10.00	10.00	10.50	------	------	------	------	------	------	------
Blue Rapids, Kans. (a)	2.50	4.00	6.00	10.00	10.00	10.50	10.00	------	23.15	19.00	19.375	20.00	------
Denver, Colo.	------	------	------	11.80	------	------	------	------	------	------	------	------	------
Douglas, Ariz.	------	------	6.00	------	15.00	------	------	------	------	15.50	------	------	------
Ft. Dodge, Iowa (a)	2.50	4.00	6.00	10.00	10.00	10.50	15.45	------	22.70	20.00	19.375	20.00	30.00
Grand Rapids, Mich.	2.50†	------	6.00‡	10.00	10.00‖	10.00‖	------	------	------	------	------	------	------
Gypsum, Ohio (a)	2.75	4.00	6.00	10.00	10.00	10.00	19.25	7.50	26.85	19.00	19.375	20.00	30.00
Port Clinton, Ohio	3.00	4.00	6.00	8.00	10.00	10.00	20.00	7.50	30.15	20.00	------	20.00	30.00
Portland, Colo.	------	------	------	10.00	------	------	------	------	------	------	------	------	------
San Francisco, Calif.	------	------	------	15.40*	------	------	------	------	------	------	------	------	------
Winnipeg, Man.	5.50	5.50	7.00	13.50	15.00	15.00	------	------	------	------	28.50	------	35.00

NOTE—Returnable Bags, 10c each; Paper Bags $1.50 per ton extra (not returnable).
*Including sacks at 15c each; (a) prices are net of bags; (†) to 3.00; (‡) to 8.00; (‖) to 12.50.

New Machinery and Equipment

New Fifteen-Ton Gasoline Locomotive

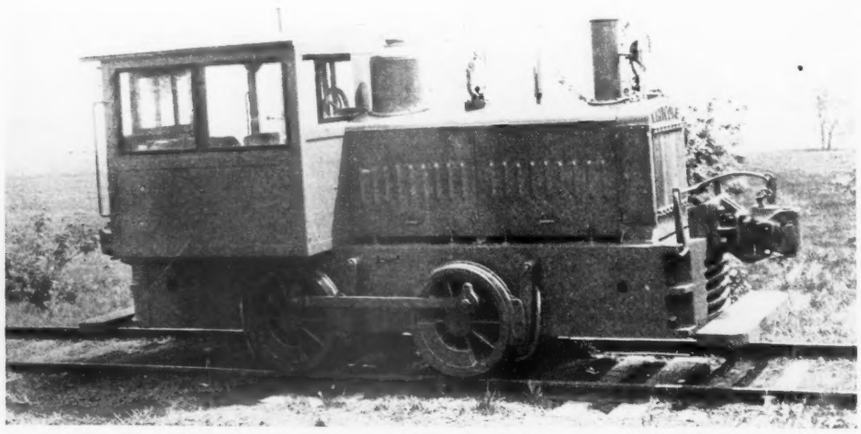
THE Geo. D. Whitcomb Co., Rochelle, Ill., has recently placed on the market its Type "Mo-15" 15-ton, 4-speed gasoline locomotive. This locomotive is particularly adapted for heavy haulage and for switching work. It has a low center of gravity and four speeds in both directions.

The wheel-base of this locomotive is 52 in. and its length 15 ft. 6 in. The height over the cab is 7 ft. 4 in.

The power is furnished by a 6-cylinder (5½x7-in.) Model R 6 Climax engine, which is fitted with an American Bosch Magneto with impulse starter coupling. The engine is rated at 95 hp. at 500 r. p. m. The engine is governed and is provided with dual ignition.

The transmission is of regular Whitcomb design with chrome vanadium gears and nickel steel shafts, and provides four speeds of 3½, 5, 8¼ and 13 miles per hour in either direction, with engine running at 900 r. p. m.

The wheels, on 56½-in. gage, are 30 in. in diameter and are made of cast iron with steel tires, and the radiator is of special artillery type, with removable sections. The gasoline tank is of 25 gallon capacity. The coupler height from rail is 12½ in., 15½ in., 18½ in., 21½ in. or 24½ in., also with standard "MCB" coupler, 34½ in.

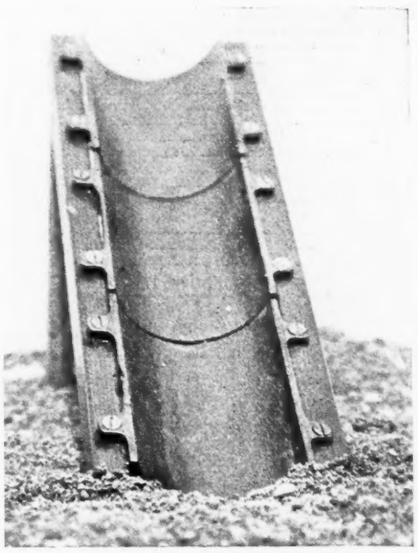


New 15-ton Whitcomb gasoline locomotive

Showing the new 15-ton locomotive coupled to quarry train

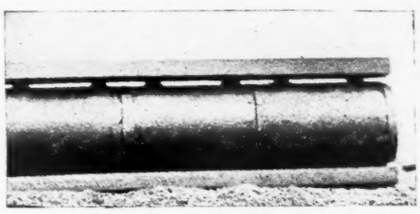
"Strenes" Metal Chutes

STRENES metal is a hard, close structured metal in which the hardness is uniform throughout, having the hardness of chilled iron with the additional advantage of a toughness under abrasion which is not found in either chilled iron or white iron. Its tensile strength is approximately equal to that of grey iron, thereby allowing its use in any part which could be used of this material but where additional wearing qualities are desired. Strenes metal is of a uniform file hardness and cannot be machined.



Liner of Strenes metal with no bolts in wearing surface

Strenes metal is now being marketed by the Advance Foundry Co. of Dayton, Ohio, in two forms, for use in the sand and gravel, crushed stone and allied industries; in plates for lining box-type wooden chutes, and in a curved chute of new design. The curved wearing surface assures the most efficient flow of material, as there are no corners in which pebbles or the coarser portion of the produce can be pocketed and thus retard the flow. The half round, or elliptic, design assures the greatest volume of flow of water in the lowest part of the chute, where it will be working against the heaviest material to be moved. This type of chute saves the time and material consumed in building a box-type structure. Linings for box-type chutes are also designed so that there are no bolts in the wearing surface to wear down and form pockets. The metal in the chute is distributed in a manner to give the heaviest section where the wear occurs and tapers down where no wear occurs, thereby saving useless weight. The flange joint shown at the upper end of the chute serves not only as a lap joint to reduce the



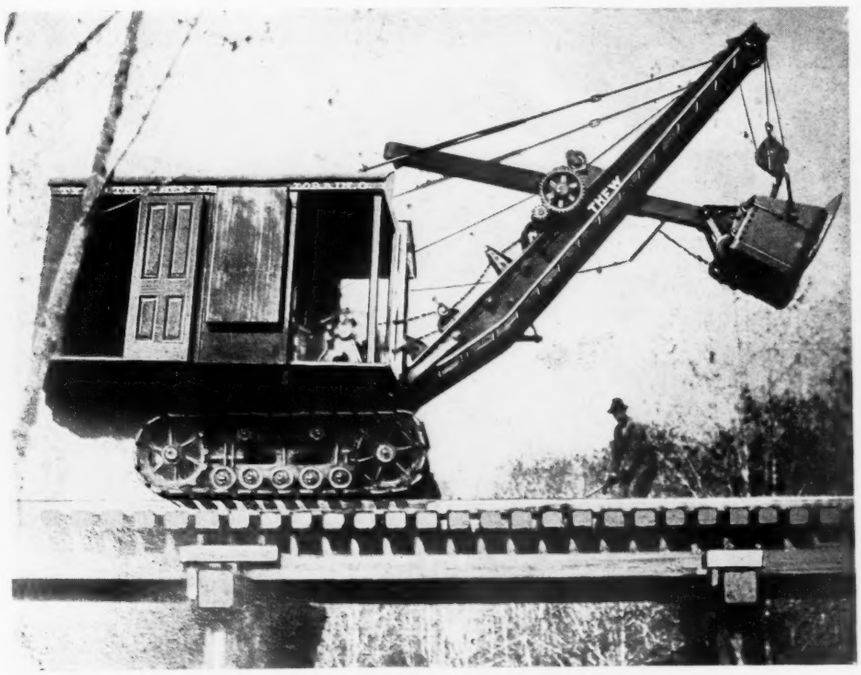
The curved wearing surface insures easiest flow of material

loss of water but also aids in proper chute alignment. These chutes are furnished in 24-in. sections which are easily replaced in a few moments time should some accident occur to break one or more sections. They are furnished in standard sections of 12-in. half-round, and 15-in. elliptic, 24 in. in length or in special sizes to meet requirements.

Aerial Gymnastics with a Shovel on Crawler Tread

THIS photograph, furnished by the Thew Shovel Co., Lorain, Ohio, illustrates the remarkable capabilities of the modern crawler tread mounting for power shovels. The makers rightly say that it takes real nerve as well as a dependable steering mechanism to perform the stunt pictured.

This Thew gasoline shovel, belonging to the Astoria Crushed Rock Co. at Cathlamet, Wis., was on its way to work on the extension of a logging railroad. The only way it could get to the place beyond where the rails were laid was across this one-track trestle which was so narrow that the shovel treads projected over both sides.



A notable feat in moving a shovel. The operator ran it across a bridge on a logging railroad which was so narrow that the shovel treads projected over both sides

But a mere trifle like a high trestle could not stop this operator. He piloted his shovel safely across and ambled on his way as though it were a common occurrence.

Any shovel operator wishing to take steering lessons would do well to get in touch with this operator, who showed nerve and ability in this feat.

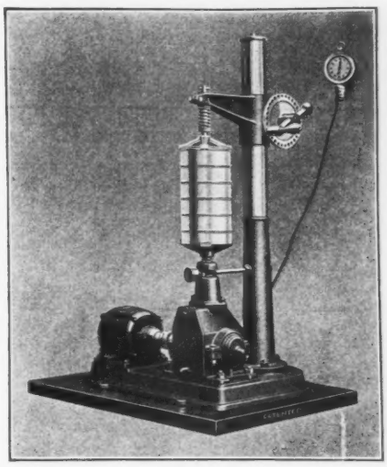
New Sturtevant Test Sieve

THE Sturtevant Mill Co. is putting a new device on the market which will find a use in the laboratory of almost any rock products industry. They call it a "test sieve" but it is really a machine for making mechanical screen tests, avoiding the long and tedious labor of screening samples by hand.

The manufacturers of the machine rightly say that hand sieving is an inaccurate and tedious task. It requires the services of conscientious, careful, and intelligent persons, and even then the results are rarely twice alike. For the making of accurate samples, the same sieving action should be continued for the same length of time, this being quite impossible by hand labor.

The test sieve was designed to do by mechanical means that which could not be done satisfactorily by hand labor. This machine not only gives accuracy in sieving and timing, but can produce from two to 13 products at a single operation by the use of from one to 12 half-height sieves, or when using one to six full-height sieves, from two to seven products may be secured. Sieves with diameters varying from 6 to 10 in. may be used.

This machine accomplishes its work with precision and in far less time than any hand method. It requires no attention during the sieving operation, for by simply setting the time switch, the duration of the test is automatically regulated, and the machine stops when a predetermined time has elapsed. The test sieves are supplied, complete with motor, and one simply connects it with the light circuit, and it is ready to run. The machine is massive to withstand rapid and intensive vibration of minute amplitude; it is instantly accessible for placing and removing any number of sieves within its range. The time switch may be placed at any convenient location. It sets like a clock and stops the machine automatically at the expiration of any desired interval of time.



Sturtevant test sieve for making quick and accurate screen tests

Insert for Machine Mounting

FOR the purpose of fastening machinery or other equipment to concrete floors, walls or ceilings without the disadvantages attending the use of bolts embedded directly in the concrete, a new adjustable bolt insert has been designed by the Westinghouse Electric and Manufacturing Co. When bolts are embedded directly in the concrete, they often have to be bent or forced into position, with a consequent mutilation of the threads, or the mounting bolt holes reamed.

The Westinghouse insert permits an adjustment of the bolt position after the concrete has set. The adjustable insert consists of a cast-iron housing with a tapering body and contains a rotatable bolt carrier. The bolt carrier is T-slotted to take the head of a standard machine bolt and is of sufficient length to permit a 5/8-in. movement of the bolt from the center. Since the carrier can be rotated, the adjustment of the position of the bolt can be secured in any direction. The housing and bolt carrier are provided with teeth which mesh and prevent any change in position after the adjustment has been made and before the bolt has been tightened. The teeth are kept in mesh by a retaining spring.

When the insert is to be installed, the form for the concrete is drilled at the point desired for the bolt. The insert is then fastened tightly to the form by a bolt run through the form and screwed into a nut placed in the T-slot of the bolt carrier. After the concrete has set for a suitable length of time, this bolt and nut are removed and a bolt of the proper length is placed in the bolt carrier which is rotated until the bolt is in the correct position.

News of All the Industry

Incorporations

Ogdensburg Limestone Products Co., Ogdensburg, N. J., has been incorporated for $60,000.

Ohio River Sand Co., Pittsburgh, Penn., has been incorporated for $60,000 by Joseph R. McGaw.

Certified Mortar Co., Portland, Ore., has been incorporated for $25,000 by Harold Blake and E. B. Allehoff.

Dorer-Schueler Co., Main street, Milwaukee, Wis., has been incorporated for $125,000 to manufacture concrete products.

Leonard Stone Co., New York City, has been incorporated for $30,000 to operate a quarry. (U. S. Corporation Co.)

Turtle Island Crushed Stone Co., Cohasset, Mass., has been incorporated for $10,000. President, Chas. Nathan Mitchell.

Standard Concrete Block Co., Lansing, Mich., has been incorporated for $10,000, with headquarters at 1206 East Mt. Hope street.

Miller Cement Block Machine Co. has been incorporated under the laws of Delaware for $1,000,000. (S. E. Diel, Wilmington, Del.)

Hillsboro Concrete Brick and Tile Co., Hillsboro, Ore., has been incorporated for $25,000 by Edward Krahmer, Roy Schulmerich, and Sherman J. Moody.

Dallas Waterseal Roof Tile Co., Dallas, Texas, has been incorporated for $10,000 by W. A. Currie, J. H. Neel, and E. P. Dougherty of 2701 Hibernian street.

High Rock Sand and Gravel Co., Winston-Salem, N. C., has been incorporated for $50,000 by J. P. Marvel and C. and R. H. Campbell, all of Winston-Salem.

Lively Lime Products Co., Gold Hill, Ore., has been incorporated for $10,000 by C. W. Courtney, M. S. Johnson, J. M. Lively, K. V. Lively, and J. W. Lively.

Crystal Lime and Mining Co., Dover, N. J., has been incorporated under the laws of Delaware for $250,000 to operate stone quarries. (U. S. Corporation Co.)

Bignell Concrete Pile Co. has been incorporated in Los Angeles, Calif., with a capital stock of $1,000,000 by E. Bignell, J. C. Allison, F. Ashton, S. A. McNeil, and S. M. Salisbury.

Waynesboro Ocher Co., Inc., has been incorporated for $20,000, in Staunton, Va. Harry Guthridge, president; Ethel D. Guthridge, secretary; both of Washington, D. C.

Philbur Corporation, Portland, Ore., has been incorporated for $5000 by L. E. Schmitt, M. A. Phillips, and B. H. Burleson to handle sand, gravel, and building materials.

Schweinhaupt Bros., 924 North Niagara street, Saginaw, Mich., have incorporated their business, with a capital of $15,000, and will continue the manufacture of concrete tanks, tile, pipe, etc.

Needham Sand and Gravel Co., Needham, Mass., has been incorporated for $25,000 by Massimiliano Ruggiero, Vincenzo Rossi, and Pasquale Di Filippo of Boston, and Benedetto Generazio of Newton, Mass.

Williams-Daflin Sand and Gravel Co. has been incorporated under the laws of Delaware for $30,000 to deal in rock, and sand and gravel. Incorporators: T. L. Croteau, M. A. Bruce, and A. M. Hooven, Wilmington.

Sand and Gravel

Otisville Sand and Gravel Co., Otisville, N. Y., is the new name of a company formerly known as Bull & Wilbur.

North Dakota State Highway Commission has invited all farmers of that state who have gravel deposits on their land, and who wish to sell gravel for road work, to send in samples for testing.

Callahan Sand and Gravel Co., Earlville, Ohio, lost by fire recently a Ford truck, a large amount of gasoline and oil, a shed, and a haystack. A touring car belonging to one of the employes was also destroyed.

John Gidner, Charlotte, Mich., has sold to Eaton county 20 acres of the old Fred Shance farm in Benton township for $3000. The reason for the county making the purchase is that the property contains a good gravel pit.

A. W. Sergeant is opening a new sand and gravel pit near Boonville, N. Y. Machinery for the storing and loading of sand and gravel is now being installed, and is expected to be in operation in the spring. W. J. Bennett is assisting in the work.

Hugo Spalinski is the new owner of large sand pits and machinery equipment located near Cleveland avenue, Lower Morrisville, Penn., through a purchase from Charles T. Eastburn. The sale price was not announced, although the place has been held at $20,000, the report states. With the purchase goes sand and gravel rights, as well as modern equipment for digging sand and gravel. The land is owned by William G. Howell, from whom rights are leased by the new owner of the business.

Quarries

Williford, Ark.—The quarry here is shipping crushed stone at the rate of 25 cars a day, reports state.

Breckenridge, Mo., may shortly have a quarry and rock crushing plant, according to Missouri local papers.

Steins, New Mexico.—According to Roadmaster Eugene Belch, the rock quarries here will open for business about January, to be open for some time.

Blue Mountain Stone Co., York, Penn., has been enlarging its plant. The company has been preparing to take care of the dust that it is stated has proved an annoyance to farmers and others.

Penn Lime Stone Co., Rheems, Penn., on September 25 commenced an eight-hour day and 40-hour week at its crushing plant for an indefinite period. When operating to capacity, the payroll numbers about 50 employes.

Robert D. Gordon, 18 Toronto street, Toronto, Ontario, Can., has taken over the Hagersville Crushed Stone Co. and has changed the name to **Gordon Crushed Stone Co.** Robert Hamilton, who has been manager of the Hagersville Crushed Stone Co., is retiring from the business, and Mr. Gordon will now be manager. He was general sales agent for the company for four years; before that he was with Crushed Stone, Ltd.; and earlier was associated with his father in the Gordon Granite Co. at Gananoque, Ont. The plant is said to have a capacity for 1000 tons a day. J. C. Finnan will be superintendent in charge of operation.

Cement

National Cement Co., Birmingham, Ala., held a sales meeting at the Molton hotel on October 4. Salesmen from seven southeastern states attended.

California Portland Cement Co., Colton, Calif., has plans for a new local storage and distributing plant to cost $200,000, including equipment. The main offices of the company are in the Pacific Mutual building, Los Angeles.

Lehigh Portland Cement Co., Allentown, Penn., invited a large group of business men to inspect its Birmingham plant recently. The visitors were carried through the various units of the plant and the process of manufacturing cement demonstrated to them. A barbecue dinner was also served. A fourth kiln was recently completed and is now in operation.

Bath Portland Cement Co., Bath, Penn., has awarded a blanket contract to the Public Service Production Co., Public Service Terminal, Newark, N. J., a subsidiary of the Public Service Corporation, for the construction of a new mill at Sandt's Eddy, about six miles from Easton, Penn., on the Delaware river. The plant will have an initial output of 950,000 bbl. annually, with practically all machinery electrically operated. It is estimated to cost $1,500,000.

Sand-Lime Brick

Sand Lime Products Co., Detroit, Mich., has sent out the following announcement: "It may interest you to know that during September we purchased, subject to a mortgage, the property upon which our plant is located. During the same month we reduced our accounts payable. From now on we have no rent to pay upon real estate. Our profits will be increased by the amount of rent paid less interest now to be paid upon the mortgage. We have sold additional stock in our company to finance the above. More stock is now being sold and it is expected that we will soon have sufficient working capital to provide for discounting all bills."

Lime

Kelley Island Lime and Transport Co. contemplates the rebuilding of its factory at White Rock, Ohio, involving an expenditure of $75,000.

John S. Bowers of Decatur, Ind., writes Rock Products that experiments are being made in substituting marl from his pit for limerock to burn for lime to be used in making beet sugar. The marl contains 93.5% $CaCO_3$ and at present finds use as agricultural limestone.

Fischer Lime and Cement Co., 269 Walnut street, Memphis, Tenn., has plans for the establishment of a storage and distributing plant, to include the installation of a locomotive crane, loading, conveying and other equipment. W. F. Schulz, Memphis, Tenn., is consulting engineer, in charge.

Silica Sand

William L. Merritt, Bay Horse Mine, Huntington, Ore., has written Rock Products that he is interested in diatomaceous earth and expects to be placing some of it on the market soon.

Gypsum

United States Gypsum Co., Chicago, Ill., according to reports, has ratified a proposal to increase common stock from 400,000 shares with a par value of $20 to 500,000 shares with a par value of $20.

Cement Products

W. E. Bowen & Son have purchased the plant of the Wilson Packing Co., in Augusta, Mich., and will install machinery for the manufacture of concrete blocks.

Building Service and Supply Co. has purchased the building material, concrete products, and fireplace equipment business of R. M. Dinwiddie in Longview, Wash.

Waterseal Concrete Tile Co., Exchange building, Portland, Ore., is the name under which William Frese and J. A. Wiley have engaged in the concrete tile and roofing business.

Stonemakers, Inc., West Palm Beach, Fla., of which A. S. Anderson is secretary, will erect an $8000 frame building and will install $47,000 worth of equipment for the manufacture of a new bond to use instead of cement in the manufacture of brick, blocks, tile, stucco, etc.

Richmond, S. I., N. Y.—Large waterfront property bordering the Kill Van Kull and frontage 125 ft. on Bank street, New Brighton, S. I., has been purchased by clients of George J. Brown, 305 Broadway, for the manufacture of concrete brick and roof tiles by a new process.

Edwards-Fyfe Cement Co., Kennewick, Wash., has sold the equipment of its plants to the Yakima

Superior McCully Fine Reduction Gyratory Crusher

The most successful secondary gyratory crusher on the market today

Operating on the hardest ores, trap rock, granite, gravel boulders and limestones.

Has reversible concaves and reversible top shell, increasing the life of concaves 100 per cent.

Reduced angle between head and concaves insuring a more uniform product. Increased discharge area giving a large capacity of product.

Cut cast steel driving gears reducing horsepower to drive.

A POSITIVE OILING SYSTEM flooding eccentric bearing and driving gears with a copious supply of oil at all times.

Send for Bulletin No. 1461

Sizes, Capacities, Horse Power and Weights:

Size of Crusher in Inches	Two Feed Openings Size Each in Inches	CAPACITY PER HOUR IN TONS OF 2000 POUNDS — Size of Discharge Opening in Inches									DRIVING PULLEY		H.P. Required	Weight of Crusher in Lbs.
		¾	⅞	1	1¼	1½	1¾	2	2¼	2½	Size in Inches	R.P.M.		
6	6x40	24	28	32	40	48	.....	.....	.....	.....	36x12½	500	40 50	32000
10	10x52	.....	.....	.....	.....	80	94	107	120	135	36x18½	450	75 100	64000

ALLIS-CHALMERS

MILWAUKEE, WIS. U. S. A.

Cement Products Co., Yakima, Wash., according to reports. Work of dismantling the plant was started recently and the machinery will be moved to Yakima. The Edwards-Fyfe company retains the stock of concrete pipe now in the yard.

Polaris Concrete Products Co. of Duluth, Minn., announces the installation of a modern plant at 999 Snelling avenue, St. Paul, Minn., to manufacture reinforced concrete pipe in all sizes from 12 in. diameter upward. The new plant will enable the company to furnish quotations on reinforced concrete pipe directly from the St. Paul plant.

Hankins-Paulson Co., Uniontown, Penn., has established a factory on North Beeson avenue at which the Straub patented building "blox" is being manufactured. This "blox" was put on the market several years ago by a New Kensington contractor. The local company has secured the exclusive rights to manufacture the "blox" in Fayette county and already orders that will keep the local plant busy for several weeks are on hand, it is stated. At present only one machine is being used to manufacture about 450 "bloxs" a day, but this machinery will be added to in the near future in order to increase the output of the local plant. The "blox" is constructed of a mixture of cinders and ashes and portland cement. It is mixed, then put into a mold and after being formed is lifted off and allowed to harden. When first taken from the mold it is dark gray in color and as the setting process continues takes on a slate, and finally a pleasing gray hue.

Slag

Birmingham Slag Co., Birmingham, Ala., shipped 25,905 cars of basic slag in 1923, more than 1,000,000 tons. This company was the pioneer in the South in reclaiming slag for the commercial market.

Talc

Georgia Talc Co., Asheville, N. C., is planning for the installation of equipment at its properties and has inquiries out for a screw conveyor, four or five roll air compressor, shafting, split steel pulleys and other apparatus.

Slate

Arvon Slate Co.'s quarry in Bushkill township, near Wind Gap, Penn., has been sold by Daniel B. Heller and Mrs. Lottie M. Headley, receivers of the Arvon Slate Co., to Oscar Flory, of the **Structural Slate Co.**, for $8000, subject to a lien. The late William J. Seiple, of Easton, was president of this slate company. In addition to the quarry, the property includes three tracts of land in Bushkill township containing 92 acres; a half interest in a tract of 19 acres and two-thirds interest in six tracts containing 49 acres.

Feldspar

Seaboard Feldspar Co., Baltimore, Md., of which Charles Ingram is president, has been organized to take over the plant of the Products Operating Co., near the Union Stock Yards, and will enlarge, putting in new machinery, including a grinding mill for commercial feldspar products.

Phosphate

Consolidated Phosphate Co., Dublin, Ga., has tentative plans under advisement for the rebuilding of the portion of its local plant recently destroyed by fire. An official estimate of loss has not been announced.

International Agricultural Corp., Arkwright, S. C., is reported to be planning for the rebuilding of the portion of its local fertilizer plant, destroyed by fire, September 2, with loss estimated at $100,000, including equipment.

Manufacturers

Worthington Pump and Machinery Corporation, 115 Broadway, New York City, has plans under way for an addition to the Laidlaw Works, Cincinnati, Ohio, bids for which will shortly be asked.

Anderson Foundry and Machine Co., Anderson, Ind., announces the reorganization of its company which will immediately commence full operations under the new corporation known as the **Anderson Engine and Foundry Co.** The company states that the Type K Anderson engine will be placed on the market greatly improved, in the same sizes as previously marketed, 30 to 325 hp.

Beaver Manufacturing Co., Milwaukee, Wis., builder of industrial engines, used chiefly in road building machinery, has acquired and is occupying 20,000 additional feet of floor space. This space was required to take care of the expanding business and is being used only as an assembly and testing department. The company states that the actual increase in engine business of this year over last year's showing is 69%, which speaks well for the soundness and volume of the industrial field as an outlet for automotive equipment.

Personals

George Nattkemper, Terre Haute, Ind., a well known sand and gravel producer of Indiana, has been named one of the presidential electors on the republican ticket.

J. R. Thoenen, mining engineer and author of a series of articles on mining versus quarrying appearing in Rock Products, is now visiting eastern limestone mining operations.

F. M. Kirby has been appointed sales manager of O'Neals Lime Works and offices have been moved from the Lincoln Life building, Birmingham, Ala., to 1302 First avenue.

George B. Campion, for 12 years connected with the B. F. Goodrich Co., has been appointed manager of Goodrich mechanical sales at Akron, succeeding T. A. Bonnot, who has been appointed manager of the products control department new goods division.

Michael H. Connelly, formerly sales agent for the American Car and Foundry Co., has resigned and is now manager of sales, with offices at 8 Lister avenue, Newark, N. J., for the Albany Car Wheel Co., Reading Car Wheel Co., and General Steel Casting and Machine Co.

Arthur H. Blanchard, M. Am. Soc. C. E., professor of highway engineering and highway transport, University of Michigan, has been appointed, by Gov. Alexander J. Groesbeck and Commissioner Frank F. Rogers, consulting engineer to the Michigan State Highway Department.

Charles Herzog of Pittsburgh, Penn., secretary of the Concrete Products Association, was recently invited by the Commerce department to attend a conference at Chicago on October 16, where plans to simplify concrete blocks and hollow tiles were to be adopted.

William Fouden of Nashville, Tenn., has been named foreman and **William Ernst** of Demopolis, Ala., chemist of the new state cement plant at Rapid City, S. D., Secretary A. C. Hunt of the commission announced. Forty acres of property east of Rapid City have been purchased and opened as a shale pit.

Trade Literature

Davenport Locomotive Works, Davenport, Iowa. An attractive 24-page booklet setting forth the features of the Davenport gasoline locomotive.

Hill Clutch Machine and Foundry Co., Cleveland, Ohio. Bulletin T-220 introducing the company's industrial type spur-gear speed transformer.

Manitowoc Ship Building Corporation, Manitowoc, Wis., has just issued an eight-page bulletin on the kilns and coolers which the company manufactures.

Thew Shovel Co., Lorain, Ohio. Bulletin 211 covering the Type O steam shovel. Among the illustrations is a birdseye view of the turntable, with the parts indicated and named.

Concrete Tile Machinery Co., Cicero, Ill. An attractive booklet of 20 pages illustrating and describing the Hawthorne automatic machine for the production of concrete roofing tile.

Foote Bros. Gear and Machine Co., Chicago, Ill., is now distributing free on request its IXL bulletin on flexible couplings and its speed-reducer catalog announced in the September 20 number of Rock Products.

Novo Engine Co., Lansing, Mich. Circular 264, a mailing piece illustrating and describing the industrial engines made by this company. A post card is attached for the convenience of those wanting complete details.

Boston Gear Works, Norfolk Downs, Quincy, Mass. Catalog 45, a vest-pocket edition giving this company's line of gears. There are numerous illustrations and many tables of specifications, besides useful engineering tables.

Sauerman Bros., 438 South Clinton street, Chicago, Ill. Pamphlet 24 illustrating and describing power drag scrapers and portable scraper outfits made by this company. Typical installations are given both at small plants and at large ones.

Osgood Co., Marion, Ohio. Bulletin 247, introducing the company's continuous treads for railroad type shovels and giving a brief history of the development of the standard railroad shovels. Anyone interested may obtain a copy by addressing the company.

C. G. Buchanan Co., Inc., 90 West street, New York City. Bulletin 110 illustrating and describing the Type C all-steel crushers of this company's manufacture. The Type B jaw crusher is also illustrated, as well as the Types C and E crushing rolls.

Brown Hoisting Machinery Co., Cleveland, Ohio. Catalog M-24 illustrating and describing the Brownhoist belt conveyor. Much care and thought have been given to the preparation of this book, which includes information concerning capacities, power requirements, speeds, dimensions of conveyor parts, etc. A convenient tabular arrangement of the various sizes and types, with explanatory notes, makes it a simple matter to select the conveyor best adapted to a particular need. The company is also distributing Catalog F on its single-roll coal crusher.

Ingersoll-Rand Co., 11 Broadway, New York City, is distributing a 72-page book entitled, "100 and 1 Ways to Save Money with Portable Air Power," describing portable air compressors and many air tools and labor aiding methods made possible by them. There are over a hundred illustrations showing various applications, such as the portable compressor used by road builders, in building construction and repair, etc. The use of the "Jackhamer," rock drill, "Little Tugger" hoist, pneumatic drill, riveter, calking hammer, drill steel sharpener, paint spray, cement gun, etc., is described. Cost data of hand versus machine methods are included. Copies of the book may be had by writing to the company.

Statement of Ownership of Rock Products

Statement of the ownership, management, circulation, etc., required by the Act of Congress of August 24, 1912, of ROCK PRODUCTS, published every other week at 542 S. Dearborn St., Chicago, Ill., for October 1, 1924. State of Illinois, County of Cook, ss.

Before me, a notary public in and for the state and county aforesaid, personally appeared Nathan C. Rockwood, who, having been duly sworn according to law, deposes and says that he is the manager of ROCK PRODUCTS, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, Tradepress Publishing Corp.; Editor, Edmund Shaw; Managing Editor, Nathan C. Rockwood; Business Manager, Nathan C. Rockwood.

2. That the owners of 1 per cent or more of the total amount of stock are: Tradepress Publishing Corp., W. D. Callender, T. J. Sullivan, George P. Miller, Nathan C. Rockwood, W. B. Mayer and D. R. Hicks, all at 542 S. Dearborn St., Chicago, Ill.

3. That there are no bondholders, mortgagees, or other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest, direct or indirect in the said stock, bonds, or other securities than as so stated by him.

NATHAN C. ROCKWOOD,
Business Manager.

Sworn to and subscribed before me this 30th day of September, 1924.

(SEAL) CHARLES O. NELSON.

(My commission expires April 6, 1926.)